THE

AMERICAN GAS-LIGHT JOURNAL

THE OFFICIAL GAZETTE OF

LIGHT, HEAT, WATER-SUPPLY, AND SEWERAGE.

Iron Buildings, Nos. 254 & 256 Canal Street, East, near Broadway, New York.

VOL. II.—No. 28. NEW-YORK, FRIDAY, FEBRUARY 15, 1861. $3 PER ANNUM.

CORNELIUS & BAKER,

MANUFACTURERS OF

Lamps, Chandeliers, Gas-Fixtures, &c.,

MANUFACTORIES,

821 Cherry-St., and Fifth-St. and Columbia Avenue.

STORE, 710 CHESTNUT STREET,

PHILADELPHIA.

MITCHELL, VANCE & CO.,

MANUFACTURERS OF

CHANDELIERS,

AND EVERY DESCRIPTION OF GAS-FIXTURES.

WAREHOUSE, No. 620 BROADWAY,

MANUFACTORY, 335, 337, 339, 343 WEST 24th ST.,

NEW YORK.

GAS-FIXTURES.

BALL, BLACK & CO.,

565 & 567 Broadway,

CORNER OF PRINCE-STREET, NEW-YORK.

In addition to their large stock of

RICH GOODS,

Offer for sale a large assortment of

CHANDELIERS & GAS-FIXTURES

Of every description, and of the newest styles,

Both

FOREIGN AND DOMESTIC

Manufacture.

FELLOWS, HOFFMAN & Co.,

(LATE STARR, FELLOWS & CO.,)

MANUFACTURERS OF

GAS-FIXTURES AND CHANDELIERS,

Solar, Camphene & Fluid Lamps, Girandoles, Hall-Lanterns, &c.

No. 74 Beekman street, NEW YORK.

MANUFACTORY, 71, 73, 75, 77, 79, 81, 83 Boerum street,

And 88, 90, 92, 94, 96, 98 and 100 Johnston-st., BROOKLYN, N. Y.

E. V. HAUGHWOUT & CO.,

488, 490, & 492 BROADWAY,

Cor. of Broome-St., New York,

Gas-Fitters & Contractors for the Erection of Gas-Works.

Messrs. E. V. HAUGHWOUT & Co. have on hand a most extensive assortment of the newest and most desirable styles of

CHANDELIERS, BRACKETS, LAMP-POSTS, AND GAS FIXTURES OF EVERY DESCRIPTION,

to which they would respectfully call the attention of the public.

☞ Gas-fitting done in the most workmanlike manner, and on reasonable terms.

C. A. VAN KIRK & CO.,

MANUFACTURERS OF

GAS-FIXTURES AND CHANDELIERS,

Ambrose's Patent Coal-Oil Burners, to be used without Chimnies.

Patent Paragon Coal-Oil Burners, Patent Improved Excelsior Coal-Oil Burners, Hand Lamps, Columns, &c.

Manufactory at Frankford, Philadelphia.

SALES-ROOM, 626 CHESTNUT STREET.

☞ Every Article warranted equal in design and workmanship to any manufactured in the country.

M. L. CURTIS,

141 ELM STREET, NEW YORK CITY.

MANUFACTURER OF

GAS-FIXTURES.

Gas-Fitting in all its Branches.

OLD CHANDELIERS, &c., RE-FINISHED IN GILT, OR BRONZED

OR MADE TO APPEAR EQUAL TO NEW.

ANALYTICAL CHEMISTS.

CELTON BUCK, Analytical and Consulting Chemist, 254 Canal-st., New-York. Analyses of Ores, Minerals, Soils, Guanos, Coals, &c., and Tests of Commercial Articles, carefully and promptly made. Consultations may be had, and opinions given on Chemical questions. Samples for analysis from a distance, may be sent by mail or express, directed to the Laboratory as above.

LABORATORY OF CHEMISTRY. —Consultations on Chemistry applied to arts and manufactures, agriculture, metallurgy, analysis of ores, mineral waters, soils, &c. Advices on chemical fabrications. Address, Professor H. DUSSAUCK, Chemist, (from the Conservatoire Imperial of Arts and Manufactures, Paris) New Lebanon, N. Y.

ANALYTICAL & Manufacturing Chemistry.—Gesner's Chemical and Engineering Rooms. 24 William-street, New York. Rooms No. 28 and 29. Analysis made of all mineral and commercial articles. Coal oils tested, coal oil works erected, and contracts made. The best processes for purifying and deodorizing; coal and petroleum oils furnished, with skilful workmen and superintendents. Mines surveyed and coals tested.

The Kerosene patents, from which the coal oil business in the United States originated, were granted to Dr. Gesner, Chemist and Geologist.

GAS & WATER FITTINGS.

LANE & ANNIN, GAS, WATER and STEAM FITTINGS,

88 JOHN-St., Cor. of GOLD,

NEW-YORK.

Manufacturers of the best quality of all the varieties of Connections for Iron Pipes; both Malleable, Wrought and Cast Iron. Also Meter Cocks, Lamp Cocks, &c.

Also, sole manufacturers of a New Meter Cock, which connects with Lead Pipe, forming a perfect joint without solder. Also, a connection for Lead pipe, without the use of solder.

GALVANIZED FITTINGS FOR PLUMBERS.

Wrought Iron Pipe of best quality, for sale Orders solicited.

CONTRACTS MADE FOR HEATING BUILDINGS BY STEAM.

PATENT AGENTS.

TO INVENTORS.—Patent Agency of the AMERICAN GAS-LIGHT JOURNAL. —The Proprietor of the AMERICAN GAS-LIGHT JOURNAL, is happy to announce that a

PATENT DEPARTMENT

Is now connected with these ROOMS, under the charge of

MR. F. C. TREADWELL, JR.,

Well known as one of the most prompt, reliable and able Patent Agents and Experts in the United States.

Patents taken out in this Country, and in GREAT BRITAIN, FRANCE, BELGIUM, and All other Countries where Patent Laws are in force.

Re-Issues, Rejected Applications, Interference Cases, attended to with the utmost personal care, and with MR. TREADWELL'S long experience, the interests of Patentees will be unsually secure.

Inventors are cordially invited to visit the ROOMS of the AMERICAN GAS-LIGHT JOURNAL, Iron Buildings, Nos. 254 and 256 Canal street, East, near Broadway, New York.

MESSRS. J. WRIGHT & CO., CONSULTING ENGINEERS and SOLICITORS of PATENTS, No. 42 Bridge street, Blackfriars, London, E. C. Patents for inventions obtained in all countries where Patent LAWS are in force.

CLAY RETORTS.

NEW YORK FIRE-BRICK Manufactory. (Branch Works at Kreischerville, Staten Island.)

B. KREISCHER & CO., office 56 Goerck street, corner Delancy street, New York.

GAS-HOUSE TILES and FIRE BRICK of all shapes and sizes. FIRE MORTAR, CLAY, and SAND articles of every description made to order at the shortest notice. B. KREISCHER, M. MAURER, A. WEBER

KENNEDY'S Method of Securing Iron Mouth Pieces to Clay Retorts.—The Retort is made in the usual form, but without any bolt-holes through the flange. An iron collar in two pieces, is placed around the Retort behind the flange, and bolted to the mouth piece outside of the flange instead of through it.

For Engravings, see AMERICAN GAS-LIGHT JOURNAL for June, 1860, page 245. Address the Patentee, JOHN P. KENNEDY, Trenton, N. J.

SCIENTIFIC BOOKS.

SCIENTIFIC BOOKS.—D. APPLETON & Co., 443 and 445 Broadway, have just published a Catalogue of their large assortment of Books (English and American) in every department of Science and Art, embracing a valuable collection of works on Geology, Chemistry, Mechanics, Engineering, the Naval and Military Sciences, and on Steam, Steam Engines, and Steam Navigation, etc., etc., etc., with the dates and prices of each work affixed.

Catalogues remitted to any address on receipt of six cents in P. O. stamps.

GAS ENGINEERS' LIBRARY.—A few works, indispensable to Engineers, Contractors and others engaged in the construction of Gas Works and manufacture of Gas, have been selected out of a large stock of chemical and other works, and are recommended to the attention of those interested. See page 208, vol. 11, of this JOURNAL.

For sale at the Rooms of the AMERICAN GAS-LIGHT JOURNAL, New-York.

COAL OIL.—A Practical treatise on Coal, Petroleum, and other distilled Oils, by Abraham Gesner. 8vo., illustrated. Cloth, $1 50.

Sent free by mail on receipt of the amount.

BAILLIERE BROTHERS,

440 Broadway, New York.

BAILLIERE BROTHERS keep always on hand a complete assortment of all new books on Chemistry and the Sciences.

Catalogues sent gratis on application.

WATER-GAS WORKS.

WATER-GAS.—APPLETON & GRAHAM.

AGENTS FOR THE

NEW ENGLAND WATER-GAS COMPANY,

UNDER THE SANDERS PATENT,

Are prepared to give estimates for Works, and guarantee the cost of Gas not to exceed One Dollar per 1000 cubic feet.

☞ Coal or Rosin Gas-Works altered at small expense.

A. & G. continue as heretofore to erect their improved Rosin and Rosin-Oil Works for Private Dwellings, Factories, &c. For further particulars apply at 66 WASHINGTON-ST., BOSTON.

MISCELLANEOUS.

NOTICE TO MARINERS.—No. 108.—Lighthouse on Fisgard Island, Esquimalt Harbor, (Vancouver's Island.)

TREASURY DEPARTMENT,
OFFICE LIGHTHOUSE BOARD,
WASHINGTON, February 6, 1861.

Official information has been received at this office that a light is exhibited in the lighthouse recently erected on the summit of Fisgard Island. The light is fixed and of the 4th order of Fresnel.

Shows bright when bearing from N. 2 W. to N. 60 W.

Shows red when bearing from N. 60 W. to S. 6 E.

It is elevated 70 feet above mean high water level, and may be seen in clear weather 10 miles.

The bearings are magnetic.

The structure consists of a keeper's dwelling of brick, with a tower of the same material whitewashed, surmounted by an iron lantern painted red.

It is situated in latitude 48° 25′ 35″
longitude 123° 27′ 10″

By order. R. SEMMES, Secretary.

BURTIS' PATENT COMPENSATING COUNTERBALANCE FOR GASOMETERS.—This Improvement consists in making the attachment to the Gas-Holder by counterweights in such a manner as to effectually prevent it from getting out of level so as to bind, and also to prevent any escape of Gas at Cup or Hydraulic seal, where the Holder is on the Telescopic plan. Holders that work out of level, are thus evenly balanced, and prevented from binding or lodging against Tank-wall and falling down, thereby being rendered unfit for service. Where Holders or sections of Holders cannot be used on account of the above difficulties, this arrangement will remove them, and place the Holder in good working order; moreover, with this attachment, deep tanks are not necessary.

BURTIS' COUNTERBALANCE has been in use for three years at the Gas-Works, Chicago, Ill. Its resistance to high winds and snow-drifts, is alone sufficient to recommend its general adoption. For Engravings, see AMERICAN GAS-LIGHT JOURNAL for June, 1860, page 221. Address

P. T. BURTIS,
Engineer Gas-Works, Chicago, Ill.

COAL-OIL & CANDLES.

CANDLES FROM COAL.—Manufactured by the New York Paraffine Candle Co. Under Meucci's Patent. The above Company having recently made great improvement in their mode of manufacture, now offer to the public a Candle superior to any other in the market. They give a softer and more brilliant light and burn 6 hours to the pound longer than the best wax and sperm, and considering the strength of the light, are the most economical Candles in use.

CAUTION.

As unscrupulous persons are already offering imitations of these Candles, purchasers should bear in mind, that every box sold by this Company is stamped with the annexed trade mark, to counterfeit which is felony.

For sale by all first-class grocers, and to the trade by
WM. F. RIDER.
General Agent of the Company,
16 Beekman Street, New York.

STANDARD Photometric Candles—Owing to a number of Applications made to me for information concerning the supply of the "Standard Sperm Candles," used in Photometrics, I have obtained a supply, from which I can furnish those who require them with full directions for use. T. W. PARMELE,
No. 4 Irving Place, New York.

TO CANDLE AND SOAP Makers.—Processes with drawings to manufacture every kind of candles and soaps by different processes: Candles by distillation, saponification, French candles, common candles, hard and soft soaps, palm soaps; processes to bleach palm oil and make candles out of it; purification of tallow; essays on greases and soaps. Address, Professor H. DUSSAUCE, Chemist, New Lebanon, N. Y.

J. L. McREA, Dealer in Coal Oils and Lamps, Binnacle and Signal Light Oils, 139 Water street, New York.

Rosin Oil and Rosin.—For sale of our own manufacture a superior article of ROSIN OIL, for Gas purposes. Also Refined Oil. For shipment in secure iron-bound barrels, or by any single barrel.
Address MARYLAND GAS COMPANY, No. 6 Bank of Baltimore Building, Baltimore, Md.
P. S. This Company is also prepared to construct their superior Patented GAS WORKS of any capacity, from that required for a private dwelling, hotel, church, college or factory, to such as will supply cities and towns, complete in all their parts for the manufacture of GAS, from either Rosin Oil, Coal, or Rosin.

THE LUTHER ATWOOD OIL CO.—Manufacturers of Superior Illuminating, Machinery and Binacle Oils. Office, No. 34 Burling Slip, New York.

EMPIRE CITY CAMPHENE Works.—Aaron Seeley, Manufacturer and Distiller of camphene, alcohol, burning fluid, coal-oil, and dealer in naval stores, of every description. 32 and 34 Burling Slip, New York.

H. RYDER & CO., New Bedford, Mass.—Purchasers and Manufacturers of Semi-Crude Paraffine. Ryder's patent Paraffine Candles, manufactured and for sale.

NEW-BEDFORD OIL CO.—Office foot of South-st., New-Bedford, manufacture coal-oil for illuminating and lubricating purposes, of the best quality.
ABRAHAM H. HOWLAND.
Our Coal Oil will burn in all Kerosene Lamps.

LUBRICATING COAL OIL. Crude Oil, and Paraffine.—Calvin Dickey, Manufacturer of Lubricating Coal Oil, free from odor and chemicals, and warranted to be as good for cotton and woolen machinery as lard oil. This oil is now also used by several rail roads in its pure state. Samples sent to responsible parties. Also 32° crude oil, which will yield 75 per cent. of burning oil; and slack pressed Paraffine of superior quality. CALVIN DICKEY,
Newark, Ohio.

OLEOMETERS.

OLEOMETER, OR HYDROMETER. For Kerosene, Coal Oils, Petroleum and other Distilled Oils. Scale by Dr. Gesner. Manufactured and sold by
G. TAGLIABUE,
298 Pearl-st., New York.

PORTABLE GAS-WORKS.

THE AUBIN GAS-WORKS CO., No. 44 State street, Albany, N. Y., will refer parties wanting GAS-WORKS FOR VILLAGES to seventeen of their Village Works now in operation in the United States and the Canadas in *every one of which the profits of the company are ten per cent. and upwards, and yet good gas is furnished.* Agents wanted to extend the sale of the AUBIN PORTABLE GAS STOVE for dwellings, factories, &c., which will make 1000 feet of gas in five hours, and with greater simplicity, safety and economy, than any other known apparatus.

BUTLER'S PATENT PORTABLE ROSIN GAS-WORKS,
FOR
DWELLINGS, CHURCHES, COUNTRY VILLAGES
AS WELL AS FOR CONSUMERS IN LARGE CITIES.
JOHN BUTLER,
No. 112 Fulton-st and 15 Henry-st.,
Brooklyn, N. Y.

FOR LIGHTING RAILROAD CARS AND STEAMBOATS WITH GAS.
The whole process of Filling the Gas-Holders of a Railway Train, requires but Three Minutes.
APPLY TO THE
NEW YORK CAR & STEAMBOAT GAS CO.,
No. 117 Fulton st., N. Y.

C. R. WOODWORTH, Manufacturer of
PORTABLE GAS WORKS,
74 WALL STREET, New York City

PORTABLE GAS WORKS.—S. T. McDOUGALL'S PATENT Portable Gas Works, for making Gas from Rosin, Rosin Oil, Coal Oil, Naptha, Grease, etc. These Works combine the latest improvements in gas making, and are guaranteed to be superior to any in market. They are made of all sizes, suitable for either country or city use. No county house is complete without its Gas Works. Gas Stoves of every description on hand and made to order. For sale by S. T. McDougall, 170 Center Street, New York.
Agents wanted in other cities to sell rights or machines.

GAS FOR THE COUNTRY.—C. WOOSTER, Manufacturer of Improved Portable Gas-Machines, for Villages, Public Institutions, Churches, Hotels, Railroad Depots, Factories, Mills, Machine-Shops, Plantation Dwellings, &c. Office, 256 Canal street, near Broadway.
This Machine has been in successful operation for years, in many of the best residences and factories in the country, and for simplicity of construction, ease of management and economy of light produced, possess advantages over all other machines for the purpose now in use. It is adapted to the making of Gas from Crude Rosin or Rosin-Oil, producing a Gas of twice the illuminating power of Coal-Gas, at about one half the price usually charged for that gas.
Every Machine is sold under a strict guarantee to operate according to representation, and no payment required until the fact is demonstrated by actual use.
For further particulars, and descriptive pamphlet containing references to numerous parties now using the apparatus, address
C WOOSTER,
No. 256 Canal-st., near Broadway, N. Y.
For Engravings, see AMERICAN GAS-LIGHT JOURNAL, for June, 1860, page 245.
☞ Responsible Agents wanted, with whom liberal arrangements will be made.

APPLETON'S IMPROVED GAS-Works, for Factories, Hotels, Dwellings, and Towns. The most simple and economical works in use, furnishing a superior light to coal gas at a cost of one half a cent per burner per hour. It does not injure trees, or plate, and is not affected by cold. For Circular and Terms apply to APPLETON & GRAHAM,
56 Washington street, Boston.
For Engravings, see AMERICAN GAS-LIGHT JOURNAL for April, 1860, page 213.

ROSIN GAS-WORKS, for Factories, Hotels, and Public Buildings. These works may be seen in operation at the Berkshire Woolen Mills, Great Barrington, Mass.; Manchester Mills, Manchester, Ct.; A. A Van Alen & Co's. Factories, Stuyvesant Falls, N.Y., and many other places JAMES O. MORSE & CO.,
76 John-st., New York.

MARSH'S PATENT ROSIN or Sun-Light Gas-Works, for Private Dwellings, Hotels, Factories, Railway stations, Sugar-Houses, Towns, &c. By the peculiar construction of the Retorts, the largest amount of decomposing surface is obtained in the smallest space. 2d. Gas is manufactured from crude rosin, without the least deposit of carbonaceous matter in the retorts or pipes: thus enabling them to be operated continuously, generating rapidly the best and cheapest illuminating gas obtained from this material. ALFRED MARSH & CO.,
241 Broadway, New York.

GASOMETER RIVETS.

PHILLIPS & ALLEN, Pennsylvania avenue, above 22d street, Philadelphia.—GASOMETER RIVETS of all kinds.

FINANCIAL.

GAS-LIGHT STOCKS FOR SALE. THREE HUNDRED THOUSAND DOLLARS of Stocks in various Gas-light Companies in the United States, paying from 6 to 12 per cent. dividend, for sale by JOHN B. MURRAY, Rooms of the AMERICAN GAS-LIGHT JOURNAL, N. Y.

OFFICE OF THE METROPOLITAN GAS-LIGHT CO.,
New York, Jan. 22, 1861.

AT THE ANNUAL ELECTION for Directors of this Company, held on the 14th inst., the following gentlemen were elected:

C. H. Sand,	Joseph Noble,
John D. Scott,	C. Godfrey Gunther,
Herman Marcuse,	George Opdyke,
James Hoy,	Melvin S. Whitney,
Edward Schell,	W. J. Syms,
Eugene S. Ballin,	Daniel Devlin.

At a subsequent meeting of the Board, C. H. SAND was unanimously re-elected President, JAMES HOY, Vice-President, O. ZOLLIKOFFER, Secretary and Treasurer, and W. TITUS, Assistant Secretary.
O. ZOLLIKOFFER, Secretary.

THE MANHATTAN GAS-LIGHT Company have declared a Dividend of Five per Cent., payable on demand.
S. H. HOWARD, Secretary.
New York, Jan. 23, 1861.

OFFICE WILLIAMSBURGH GAS-LIGHT CO.,
BROOKLYN, Jan., 14, 1861.

THE BOARD OF DIRECTORS have this day declared a Dividend of Five per Cent upon the Capital Stock; also an Interest Dividend to date, on Scrip, payable on demand. C. F BLODGET, Secretary.

OFFICE OF THE NEW YORK GAS LIGHT CO.
Jan. 21, 1861.

AT AN ELECTION HELD AT this office on the 14th inst., the following named gentlemen were chosen Directors of this Company for the ensuing year:

William W. Fox,	Joseph Sampson,
Joseph Kernochan,	Lindley M. Hoffman,
Joseph Walker,	William A. Hadden,
Thomas W. Pearsall,	William C. Pickersgill,
Guy Richards,	John H. Adam.
Edward J. Woolsey	James R. Taylor,

and Cornelius L. Everitt.
At a subsequent meeting of the Board, WILLIAM W. FOX was unanimously re-elected President; JOHN MOWTON, Manager.
C. L. EVERITT, Secretary.

OFFICE OF THE MANHATTAN GAS-LIGHT CO.,
NEW YORK, Jan. 26, 1861.

AT THE ANNUAL ELECTION for Directors, held on 14th inst., the following gentlemen were elected for the ensuing year:

HENRY YOUNG,	MOSES TAYLOR,
JOHN R. LUDLOW,	URIAH J. SMITH,
WILLIAM H. SMITH,	CHARLES ROOME,
FLOYD SMITH,	JOHN J. PHELPS,
JOHN J. CISCO,	HENRY A. HURLBUT,
JOHN ALSTYNE,	BENJAMIN W. BONNEY,
WILLIAM V. BRADY,	JOHN A. ROBINSON,

BENJAMIN B. SHERMAN.
At a subsequent meeting of the Board, CHARLES ROOME was unanimously re-elected President, FLOYD SMITH Vice-President, and S. H. HOWARD Secretary.
S. H. HOWARD, Secretary.

MISCELLANEOUS.

GAS THERMOMETERS FOR ascertaining and regulating the temperature of the gas while passing through the purifiers into the station meters. For sale at the Rooms of the AMERICAN GAS-LIGHT JOURNAL.

OFFICIAL.—NOTICE TO MARINERS.—No. 104. Africa—Southeast Coast—Fixed White Light at mouth of Buffalo River.

TREASURY DEPARTMENT, Office of Light-House Board, Washington, Dec. 20, 1860.

Official information has been received at this Office that the Colonial Government at the Cape of Good Hope has given notice, that on and after the 25th day of August, 1860, a light would be exhibited from the light-house recently erected at the entrance of Buffalo River, East London, Southeast coast of Southern Africa.
The light is a *fixed white* light, elevated 45 feet above the level of high water, and visible in clear weather from a distance of about 11 miles.
The light-house—painted in alternate bands of red and white—stands on the reef at the south side of the entrance of the river.
R. SEMMES, Secretary.

NOTICE TO MARINERS.—No. 107.—Mediterranean.—Coast of Egypt.—Fixed Light at Port Said.

TREASURY DEPARTMENT,
OFFICE LIGHTHOUSE BOARD
WASHINGTON, Feb. 5, 1861.

Information has been received at this office that a light has recently been exhibited from a light-house at Port Said, twenty-nine miles Southeast of the Damietta mouth of the Nile, Coast of Egypt.
The light is a *fixed white* light, placed at an elevation of sixty-six feet above the mean level of the sea, and should be seen from the deck of a ship at a distance of nine miles in clear weather.
The illuminating apparatus is dioptric, or by lenses of the third order.
The lighthouse is a skeleton tower of wood, and stands in latitude 31° 16′ North, longitude 32° 19′ 30″ East from Greenwich.
The bearings are magnetic. Variation 6° 10′ West, in 1861. By order:
R. SEMMES, Secretary.

GASOMETERS.

GASOMETERS, RETORT-HOUSE ROOFS, WATER-TANKS,
PURIFYING-BOXES, COAL-CARS, COKE BARROWS,
AND ALL KINDS OF
WROUGHT-IRON WORK FOR GAS AND WATER WORKS.
Manufactured by GEORGE W. KRAFT, Chestnut street wharf, West Philadelphia, Pa.

GEORGE STACEY, Cincinnati, O., Manufacturer of single and Telescopic Gasholders, Wrought-Iron Bridges, Girders, Joists and Stairways, Coke and Coal Wagons, Rakes, Screens, and other Gas-works tools, Slide and Cup Valves, Bolts, Nuts, Chisels, Ladles and other tools, Wrought-iron roofs, for Slate and Corrugated Iron, Gas Purifiers, Washers, Centre seal Valves and other Gas apparatus, Boiler-plate Retort Lids. Refer to—
Cincinnati Gas Light & Coke Co.
Nashville Gas-Light Co.
Springfield Gas-Light Co.
Columbus Gas-Light Co.
Cleveland Gas-Light Co.
Covington and Newport Gas Light Co.
Memphis Gas-Light Co.
Indianapolis Gas-Light and Coke Co.
James H. Caldwell, Esq., New Orleans.
John Jeffrey, Esq., Cincinnati.

POOLE & HUNT, Baltimore, Md., are prepared to execute orders for
GAS-HOLDERS,
IRON-ROOF FRAMING,
And all other Descriptions of
Iron Work for Gas-Works, Water-Pipes and Heavy Castings and Machinery Generally.

GAS & WATER-PIPE.

W. & J. GRIFFITHS & CO.—City Tube Works, Malleable Iron, and Brass Foundry, No. 27 North Seventh Street, Philadelphia. Manufacturers of Wrought Iron Pipe, Lap Welded Flues and Fittings: also. Brass Work of all descriptions, for gas, steam and water. Particular attention given to heating buildings, &c.

PARIS'S PATENT
GLASS-ENAMELLED WROUGHT IRON TUBES.
PROSSER'S PATENT
LAP-WELDED IRON BOILER TUBES.
TUBES FOR ARTESIAN WELLS, CONVEYING STEAM OR WATER, SHAFTING, &C., SCREWED OR COUPLED TOGETHER, IN VARIOUS WAYS.
THOS. PROSSER & SON, 28 Platt-st. N. Y

CAST AND WROUGHT IRON Pipe, Branches, Elbows, Sleeves, &c. Lamp-posts, Wrought Iron Lanterns for Lamp-posts, Gas Retorts (clay or iron), Street Mains in 9 or 12 feet lengths. Sheet iron cut to pattern for Gas-holders. For sale by the manufacturers' Agent,
HENRY G. NICHOLS, 24 Pine-st N. Y.

HUNTER, KELLER & CO., Manufacturers of
WROUGHT-IRON PIPES, AND FIXTURES of all descriptions, for
STEAM, WATER AND GAS,
144 Centre street, New York

GIRARD TUBE WORKS. MURPHY & ALLISON, Proprietors. Wrought Iron Coke-Welded Tubes, for Gas, Water, Steam, &c. Wrought, Cast and Malleable Iron Fittings, Steam and Gas Cocks, Valves. Also, Galvanized Tubes and Fittings.
Office 1908 Market street, Philadelphia

AMERICAN TUBE WORKS.—W. G. Smith & Co., Forty-sixth street, east of 10th Avenue, New York City. Manufacturers of WELDED IRON PIPE, for Steam or Gas, of all sizes, from 1-8th to 3 inches

JOSEPH NASON & CO., 61 BEEKMAN STREET, corner of Gold street, New York, Manufacturers of Wrought and Cast Iron Pipes, and every description of Steam and Gas Fittings, used by Engineers, Manufacturers, and Gas Fitters.

Boiler Flues,	Back Pressure Valves,
Steam Boilers,	Steam Traps,
Boiler Pumps,	Steam Whistles,
Steam Pumps,	Guage Cocks,
Steam Gauges,	Gas Cocks,
Safety Valves,	Gas Meters,
Stop Valves,	Fitters' Tools,
Check Valves,	Proving Pumps,
Governor Valves,	Screwing Machines.

Constructors of Apparatus for Warming Buildings by Steam and Hot Water, and improved Fans for ventilating hospitals and public buildings.
JOSEPH NASON,
HENRY R. WORTHINGTON.

ROOFING.

PATENT ASPHALTE ROOFING and SHIP SHEATHING FELTS, the cheapest, best, and most durable ever offered to the public. Circulars, samples, &c., will be forwarded free. Agents wanted for city and towns. None genuine unless purchased of AARON A. DEGRAUW, 242 South street, our sole agent for the United States.
CROGGON & CO., London.

WHERE GAS-WORKS AND WATER-WORKS ARE WANTED.

We are now publishing regularly the names of the thirty thousand post-towns in the United States, so that builders of gas-works and water-works, and the various manufacturers may see where are new openings for business. And as each post master will receive several copies of the AMERICAN GAS-LIGHT JOURNAL, for distribution, the number thus circulated will probably exceed *Three Million Copies. What a chance for advertisers!*

POST-OFFICE TOWNS IN THE UNITED STATES.

ARRANGED BY STATES AND COUNTIES,

Shewing where Gas-Works and Water-Works are Wanted.

ILLINOIS.

100 Counties, 1,482 Towns, 13 Gas-Works, 1 Water-Works.

(*Continued from page* 231.)

Jersey County.

Delhi, Fidelity, Fieldon, Grafton, Jersey Landing, Jerseyville, Newbern, Otter Creek.

Jo Daviess County.

Apple River, Avery, Council Hill, Council Hill Station, Derinda, Dunleith, Elizabeth, *Galena*, (c. h.,) Greenvale, Guilford, Hanover, Ira, Millville, Mount Sumner, Nora, Pleasant Valley, Plum River, Rush, Scales Mound, Small Pox, Stockton, Thompson's Mills. Ward's Grove, Warren, Willow.

Johnson County.

Cedar Bluff, Cross Roads, Cypress Creek, *Vienna*, (c.h.,) Gray's Mills.

Kane County.

Aurora, Batavia, Big Rock, Blackberry, Blackberry Station, Burlington, Campton, Clintonville, Dundee, Elgin, Geneva, Grouse, Hampshire, Jericho, Kaneville, King's Mills, Lodi Station, Montgomery, New Plato, New Virgil, North Plato, Pingree Grove, Rutland, Saint Charles, Sugar Grove, Udina, Winthrop.

Kankakee County.

Aroma, Bloomville, Bullbonas Grove, Essex, Grand Prairie, Kankakee Depot, Limestone, Manteno, Momence, Rockville, Saint Anne, Sherburneville, Simoda, Yellowhead Grove.

Kendall County.

Bristol, Bristol Station, Kendall, Lisbon, Little Rock. Mansfield, Maausay, Newark, Ohio Farm, Oswego, Pavilion, Plano, Plattville, Seward, Specie Grove.

Knox County.

Abingdon, Centre Point, Douglas, Eugene, Farmer's Hall, Galesburgh, Gilson, Henderson, Hermon, Hillsford, Knoxville, Maquon, Milroy, North Prairie, Oneida, Ontario, Saluda, Truro, Uniontown, Victoria, Walnut Grove, Wataga, Yates City.

Lake County.

Angola, Antioch, Deerfield, Diamond Lake, Ela, Emmet, Forksville, Fort Hill, Fox Lake, Fremont Centre, Gage's Lakes, Gilmer, Hainesville, Half Day, Hickory, Lake Zurich, Libertyville, Long Grove, Millburn, Newport, Oak Hill, Otsego, Port Clinton, Warrenton, Wauconda, Waukegan. Wellington, Wentworth.

La Salle County.

Alum Rock, Arrow, Asbury, Cornville, Crotty, Dayton, Deer Park, Eagle, Earlville, Farm Ridge, Freedom, Galloway, High Prairie, La Salle, Leland, Lowell, Manlius, Marseilles, Mendota. Miner's, Mission Point, New Rutland, Northville, Norway. Ophir, Ottawa, Peru, Scott, Serena, Tonica, Triumph, Troy Grove, Utica, Vermillionville

Lawrence County.

Bridgeport, Hadley Station, Hershey's Mill, *Lawrenceville*, (c. h.,) Old Farm, Olive, Petty's, Russellville, Saint Francesville, Sumner.

Lee County.

Amboy, Dixon, East Paw Paw, Four Mile Grove, Franklin Grove, Gap Grove, Lee Centre, Malugin Grove, Nachusa, Nelson, Ogle Station, Paw Paw Grove, Shelburn, Sublette, Willow Creek.

Livingston County.

Ancona, Amity, Avoca, Cayuga, Chatsworth, Dwight, Fairburgh, Hickory Point, Indian Grove, Long Point, New Michigan, Odell, Pontiac, Reading, Rook's Creek, Sunbury.

Logan County.

Atlanta, Boynton, Broadwell, Elkhart City, Eminence, Laenna, Lawndale, *Lincoln*, (c. h.,) Middletown, Mount Pulaski, Prairie Creek.

McDonough County.

Argyle, Bardolph, Blandinsville, Bruce, Burnsville, Bushnell, Colchester, Colmar, Friendship, Good Hope, Hill's Grove, Industry, Johnson, Macomb, Prairie City, Tennessee, Young.

McHenry County.

Alden, Algonquin, Barreville, Belden, Bliven's Mills, Cary Station, Chemung, Coral, Crystal Lake, Dearborn, Deep Cut, English Prairie, Erin, Greenwood, Harmony, Hartland, Harvard, Hebron, Huntley Grove, Lawrence, McHenry, Marengo, Ostend, Richmond, Ridgefield, Riley, Ringwood, Romeo, Solon Mills, Union, West Hebron, Woodstock.

McLean County.

Bloomington, Cheney's Grove, Chenoa, Delta, Dry Grove, Gridley, Heyworth, Hudson, Le Roy, *Lexington*, (c.h.,) Lytlesville, McLean, Padua, Randolph Grove, Selma, Senex, Shirley, Stout's Grove, Towanda, Wilkesborough.

Macon County.

Decatur, Harristown, Hopewell, Maroa, Niantic, Oakley, Sangamon, South Macon, Wilson.

Macoupin County.

Barr's Store, Brighton, Bunker Hill, *Carlinville*, (c h.,) Chesterfield, Gillespie, Girard, Hoover's Point, Hornsby, Miles' Station, Millwood, Palmyra, Piasa, Plain View, Rhoades Point, Rising Sun, Scottville, Shaw's Point, Shipman, Staunton, Stirrup Grove, Vancil's Point, Virden, Woodburn.

Madison County.

Alhambra, *Alton*, (c. h.,) Bethalto, Collinsville, Dorsey, *Edwardsville*, (c. h.,) Fosterburg, Godfrey, Highland, Lamb's Point, Madison, Marine, Moro, Moultonville, Omph Ghent, Paddock's Grove, Ridgeley, Saint Jacob, Toluca, Troy, Upper Alton, Venice, Wanda,

Marion County.

Alma, Central City, Centralia, Foster's, Green Dale, Hickory Hill, Kimmundy, New Middleton, Oden, Omega, Patoka, Racoon, *Salem*, (c. h.,) Sandoval, Walnut Hill.

Marshall County.

Bell Plain, Crow Meadows, Henry, *Lacon*, (c. h.,) La Prairie Centre, Lawn Ridge, Sparland, Steuben, Washburn, Wenona Station, Whitefield.

Mason County.

Bath, (c. h.,) Crane Creek, Egypt. Havana, Mason City, Matanzas Moscow, Prairie, Quiver, San Jose, Walker's Grove.

Massac County.

George's Creek, Hickory Grove, Metropolis City, Pellonia.

Menard County.

Athens, Greenview, Robinson's Mills, Smoot's Point, Sweet Water, Tallula.

Mercer County.

Aledo, Carbon, Centre Ridge, Eliza, Ferdinand, Hamlet, High Point, Keithsburg *Millersburgh*, (c. h.,) New Boston, Perryton, Pope Creek, Preemption, Richland Grove, Sunbeam, Viola.

Monroe County.

Burksville, Columbia, Eagle Cliffs, Hardscrabble, *Harrisonville*, (c. h.,) Hecker, Mitchie, Monroe City, Renault, Rush Island Bend, Waterloo.

Montgomery County.

Audubon, Bear Creek, Butler, Fillmore, Herndon, *Hillsboro'*, (c. h.,) Hurricane, Irving, Litchfield, Nokomis, Shop Creek, Walshville, White Oak, Zanesville.

Morgan County.

Arcadia, Alexander, Bethel, Concord, Emerald Point, Epler, Evans' Mill, Franklin, *Jacksonville*, (c. h.,) Lynnville, Maradosia, Orleans, Sinclair, Waverly, Zion.

Moultrie County.

Lovington, Marrow Bone. Sullivan.

Ogle County.

Adeline, Baileyville, Barclay, Brookville, Byron, Daysville, Dement Station, Eagle Point, Fitz Henry, Forestion, Grand Detour, Haldane, Hale, Killbuck, Kyte River, Lindenwood, Lane Depot, Luda, Monroe Centre, Mount Morris, Ogle, Oregon, Paine's Point, Pine Creek, Polo, Taylor, Wales, White Rock, Woosung.

Peoria County.

Akron, Brimfield, Brunswick, Chillicothe, Edwards' Station, Elmore, Elm Wood, *Helena*, (c. h.,) Kickapoo, Kingston Mines, Mossville, Mount Hawley, North Hampton, Orange Prairie, *Peoria*, (c. h.,) Princeville. Robin's Nest, Rome Farms, Rosefield, Smithville, Southampton, Southport, Summerville, Timber, Trivoli.

Perry County.

Carnent Prairie, Duquoin, Galum, Grand Cote Prairie, *Pinckneyville*, (c.h.,) St. John, Tamaroa.

(*To be continued.*)

PROGRESS OF THE GAS WAR IN BROOKLYN, N. Y.—The Common Council of Brooklyn met on Monday Evening, January 28, the President in the chair. The following communication from the President of the Citizens' Gas-Light Company was read:

To the Hon. the Common Council of Brooklyn:—It appearing from a report of a committee of your Honorable body, presented on the 14th of January, 1861, that the present works of the Brooklyn Gas-Light Company are not of sufficient capacity to meet the increasing demands of the city for gas, the undersigned, in behalf of the citizens Gas-Light Company, propose to supply any deficiency which may occur before the expiration of the existing contract, at the prices and on terms as liberal as those now obtained from the Brooklyn Gas Light Company. This additional required supply can be met, either by connecting the street lamps and public buildings with our mains in the street where they are laid, or by connecting our works with those of the old company's mains, and measuring the consumption by a metre, either of which is perfectly practicable. The latter plan has an additional claim upon your attention, as in case of accident, to which all companies are exposed, the city would be kept in darkness. The undersigned, in behalf of said Company, would respectfully, but firmly remonstrate against the extension of the existing contract with the Brooklyn Gas-Light Company, believing it would be detrimental to the interests of the city, by not opening to fair competition—by not availing itself of any reduction which the improved machinery, increased consumption, and a healthy competion will produce—and precluding this Company, whose means are as large and whose facilities are as complete as those of any other, from any advantages to which they are fairly entitled. As confirmatory of these views, the undersigned would respectfully submit the following facts and considerations. Prior to 1st July last private consumers of gas in the Western District paid $3 per 1,000 feet. In consequence of an expected competition a reduction of 50 cents per 1,000 feet has been made. If the number of consumers be stated at 10,000, and the yearly consumption averages 20,000 feet for each consumer, we have a saving of $10 for each person, or the large sum of $100,000 per annum placed in the pockets of the consumers by this reduction. Had the city not been bound by its contract it would have shared in the benefits of this reduction, which would have been an annual saving to its treasury of $20,000 or $60,000 on the unexpired contract. If it be urged that the reduction of price has not been met by a corresponding reduction of bills, and that the gas has been made lighter and of poorer quality, and consequently, no saving has been made by the reduction of price, the undersigned would reply that this difficulty will be removed by competition, and by competition *alone*, aided perhaps by a bill, which, it is understood, is now before the Legislature, for an Inspector of Gas, a law which would meet the approval of the company which the undersigned represents.

All of which is respectfully submitted, by order of the Board of Directors,

W. P. LIBBY, President Citizens Gas-Light Co.

The Communication was referred to the Lamp and Gas Committee.

In connection with the subject of gas, Ald. JENKINS offered a resolution directing the Commissioner of Repairs and Supplies to have the gas-lamps of the city lighted from half an hour after sunset till daylight. After some debate, the subject was reffered to the Gas Committee.

DIVIDENDS IN COKE.—The Newport R. I. Gas-Light Company declared their usual 4 per cent. cash dividend on Jan. 1, and an extra dividend of *one barrel of coke to each share of stock*. The same species of extra dividend was declared at the previous semi-annual meeting, for the reason that there is but small sale for coke, and the only way to get rid of the large stock on hand, was to make the shareholders carry it away without expense to the company. No one could get his cash until he had carried off his barrel of coke. Fancy a procession of sixteen hundred barrels of coke on as many backs of shareholders, moving with steady tread from the company's coke yard! The idea is novel and not bad; it is particularly Rhode Island. The other day this little State asked whether, if all the other States seceded, she would not be bound to pay off the national debt. Of course she would; but she can pay it off in coke on favorable terms, no doubt. Good for coke!

THE ROLLING MILLS OF PITTSBURG, PA.—The Pittsburg (Pa.,) *Evening Chronicle* announces the gratifying intelligence that all the principal rolling mills of that vicinity are in operation and doing a large business. The *Chronicle* enumerates the following establishments and the number of hands employed:—The Sligo Mill, Lyon, Shorb & Co., 150 men; Pittsburg Iron Works, Zug & Painter, 175; the Clinton Mill, Graff, Bennett & Co., 300; Jones & Lauth's Mill, 350; Sheffield Steel Works, Singer. Ninnick & Co,, 250; Eagle Mill, James Wood & Co., 250; Hussey, Well's & Co,'s Steel Works, 60; the Duquesne Iron Works, Hallman, Rahm & Co., will resume on Monday, with 150 hands; Juniata Iron Works, G. & J. H. Shoenberger, 400; Birmingham Iron Works, McKnight & Brother, 110; Cheas, Smith & Co.'s, tack and nail factory, 120; Hiawatha Nut Works, Knapp, Wood & Co., 75; the Glendor Mill Spike Works, Dilworth, Bidwell & Co., 60; Wayne Iron and Steel Works, Bailey & Brown, 160; Kensington Iron Works, Lloyd, Black & Co., 170; Pennsylvania Iron Works, Everson, Preston & Co., 130; Pittsburg Steel Works, Jones, Boyd & Co., 80. In the seventeen establishments above named there are altogether 2,995 hands employed, whose aggregate monthly wages must fall but little short of $120,000.

ON THE COMBUSTION OF WET FUEL IN THE FURNACE OF MOSES THOMPSON.

BY B. SILLIMAN, JR.,

Prof. General and Applied Chemistry in Yale College.

In all ordinary modes of combustion, it is well known that the use of wet fuel is attended with very great loss of heat, rendered latent in the conversion of water into steam. As the most perfectly air dried wood still contains about 25 per centum of water, according to the experiments of Rumford, the term *wet fuel* might seem appropriate to all fuels but mineral coal and charcoal. But technically, this term is restricted to substances like peat, and those residual products of the arts, which, like spent tan, bagasse and dye stuffs, contain at least one-half and often more than half of their weight of water. Until a recent period, the attempt to consume these products as sources of heat has been attended with uneconomical results, or total failure. It is the object of this paper to describe a mode of combustion in which, by a modification in the form of the furnace, the combustion of wet fuel is not only rendered consistent with the best economical results, but which, as it involves chemical reactions never before, it is believed, successfully applied for such purposes, is deserving of particular notice from a scientific as well as from a practical point of view.

It is a well established fact in chemistry, that the affinity of carbon for oxygen, at high temperatures, is so strong, that if oxygen is not present in a free state, any compound containing oxygen, which happens to be present, is decomposed, in order to satisfy this affinity. This fact is well illustrated in the familiar case of the blast furnace, where this affinity is employed to deprive the ores of iron of their oxygen in the process of reduction to metallic iron.

In the first stages of combustion, in wet fuels, the chief products given off are steam from the drying of the wet mass, smoke or volatilized carbon, and oxyd of carbon, with, of course, a variable proportion of carbonic acid and carburetted hydrogen. These products, in all ordinary furnaces, pass on together into the stack, carrying with them the heat which they have absorbed and rendered latent. The problem presented is then to recover the heat thus locked up and lost, and by the furnace now under consideration this is accomplished by shutting off almost entirely the access of the outer air, and causing the wet fuel to supply its own supporter of combustion, drawn from the decomposition of the vapor of water at a high temperature, by its reaction with free carbon and the oxyd of carbon.

The practical solution of this problem was first successfully accomplished by the late Moses Thompson. The controversial questions growing out of this invention are entirely foreign to our present purpose, and in no way affect its practical or scientific value. Suffice it to say, in passing, that we find in this invention another instance of a truth already so often signalized in the history of inventions, that important results are often obtained, of the highest value in promoting material prosperity and the welfare of society, by those who are guided in their search only by the result in view, and not by any exact knowledge of the scientific principles involved.

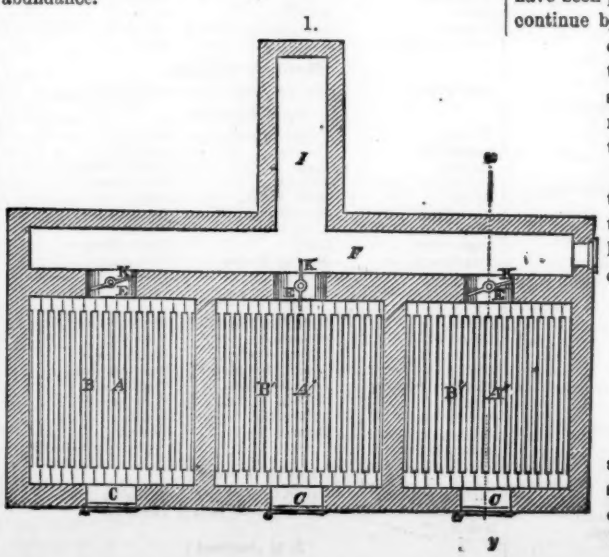
Mr. Thompson seems to have been inspired with the conviction that if he could bring the products from the combustion of wet fuel together in a place, hot enough for the purpose, and from which the atmospheric air was excluded, they would, as he expresses it in his patent, mutually "*consume each other.*" This notion was realized, and the reaction secured between the elements of water and the carbon of smoke, or the oxyd of carbon in a part of the furnace called by the inventor, the *mixing chamber*.

Wherever that place may be situated, or however constructed, the one essential thing about it is, that it should be a very hot place, and one to which the atmospheric air can have no direct access, until it has passed by, and through, the burning fuel. It is in fact a retort or place for combination and reaction, and may be a distinct chamber or flue, or only a recess or enlargement, greater or less, of the main furnace. Wherever it may be placed, or however built, it must meet the essential conditions of a high temperature, and of atmospheric isolation. In this mixing chamber, then, the important chemical reaction, before insisted on, must be set up. The vapor of water is decomposed, furnishing its oxygen to the highly heated carbon, to form carbonic acid, while the oxyd of carbon is in like manner exalted to the same condition, and any excess of carbon forms with free hydrogen, marsh gas, or light carburetted hydrogen. The vapor of water is thus made to give up not only its constituent elements to form new compounds with oxygen, producing in the change great heat, but a great part of the heat absorbed by the water in becoming steam is also liberated in this change of its physical and chemical condition. Moreover, as all these products of combustion and of chemical reaction pass together over the bridge-wall of the furnace into a space from which atmospheric air is not excluded, it then and there happens that any free hydrogen, light carburetted hydrogen or oxyd of carbon, which have previously escaped combustion, take fire and burn, yielding up their quota of heat to the general aggregate.

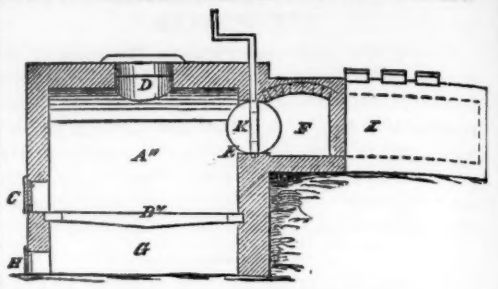
Such is the intensity of heat in that portion of the furnace where these reactions take place, that only the most solid structures of refractory fire bricks will endure it, and the color seen throughout that portion of the furnace is of the purest white.

In view of the facts already stated, it is easy to understand why it is that when the reactions described are once set up, the admission of a free current of atmospheric air should immediately check the energy of the combustion, and soon result in total suspension of the peculiar energy of this furnace. The air containing only one-fifth part of its bulk of oxygen gas, the active agent in combustion, the access of so large a proportion of cold air—four-fifths of which are not only indifferent but positively prejudicial, from the quantity of heat it absorbs—it happens that the temperature of the mixing chamber is rapidly reduced below the point at which carbon can decompose vapor of water, and the instant that point is reached, the arrival of fresh supplies of steam completes the decline of energy, and the furnace commences forthwith to belch forth from its stack dense volumes of smoke and watery vapor. When in proper action, not a particle of smoke is visible from the stack of a furnace in which wet fuel is burning, and, what is more remarkable, the reactions are so evenly balanced that no wreaths of watery vapor are observed, while in the earlier stages of combustion, before the proper temperature in the mixing chamber is reached, both these products are seen in great abundance.

1.



2.



DESCRIPTION OF THE FURNACES.

1ST. *Furnace for combustion of wet tan, sawdust, &c.*

Fig. 1, is a horizontal section of a furnace constructed according to the specifications of Thompson's first patent, (issued April 10th, 1855).

Fig. 2, is a vertical section of the same in the line x y, of figure 1.

Similar letters indicate corresponding parts in both figures.

The furnace shown in these figures has three square or oblong fire chambers, A, A', A'', side by side, experience having shown that not less than three compartments are required to secure the best results in the practical working of the furnace, although in some cases two may suffice, but frequently more than three are desirable. The fire chambers are furnished with grate bottoms B, B', B'', of fire bricks, and are arched at top. Each chamber has a door C, in front for lighting and tending the fire. This opening is seldom used after the furnace is once set in action. The wet fuel is supplied through the opening D at top. E is an opening at the back of each chamber leading to the flue F, or the mixing chamber. This opening may be provided with a damper K (which must be of fire clay, if of iron the intense heat soon destroys it.) Each chamber has a seperate ash pit G with its opening H. This, although called an ash pit, serves a most important purpose in the economy of the furnace as a receptacle for the burning coals which constantly fall into it from the lower part of the wet mass above, as will be more particularly explained beyond.

If the furnace is used for generating steam, the best place for the boiler is over the flue I. The inventor remarks in his first patent, that the current from the mixing chamber in passing to the place of use, in the case of burning wet tan or other very wet fuel, should descend or pass under a bridge to the place of use equal to about one half of the depth of the burning chamber between the grate and the crown, then rise to the place of use. In case of dry or nearly dry fuel, such as green wood and saw dust, the current should rise immediately after leaving the burning chamber to the place of use.

The mode of conducting the operation of the furnace is as follows: fires being lighted in all the fire chambers with dry fuel, and the masonry heated to a high degree, two of the three chambers $A\,A'$ are fed with wet fuel, and have their ash pits closed. The other fire chamber is kept in action by dry fuel (its ash pit door being proportionally open) until the process of combustion sets in over the surface of the pile of wet fuel resting on the grates of the other furnaces. As soon as this is the case, wet fuel is added by degrees to the third fire chamber, the ash pit door being at the same time closed. If things have been properly managed so far, the process will now continue by the addition of new portions of wet fuel to each furnace in succession or alternately. The temperature of the mixing chamber F is now seen to be of the most perfect whiteness and not a visible particle of smoke issues from the stack.

Before disscussing this process more in detail, let us first consider the Inventor's description of his furnace as designed more particularly for the consumption of *bagasse* or crushed cane stalks.

---

2. *Furnace for Combustion of Wet Cane Bagasse.*

Fig. 3 is a sectional side view, the interior and exterior form of the furnace, and its several parts, according to the specifications of Thompson's patent of December 15, 1857.

3.

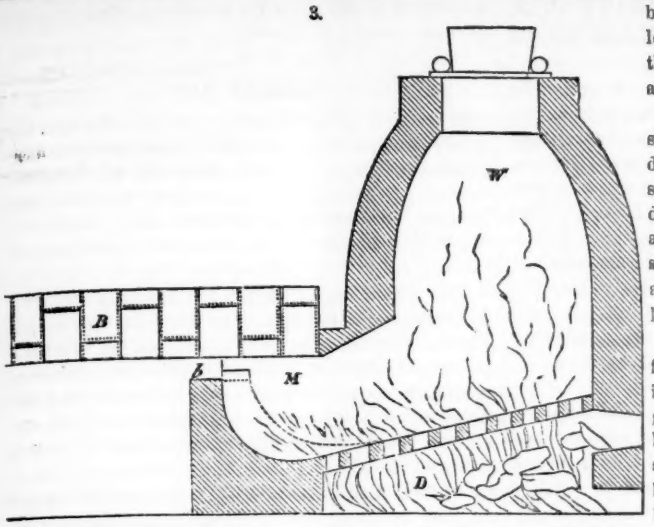


Fig. 4 is a front sectional view of the same, showing the combination of two double furnaces.

4.

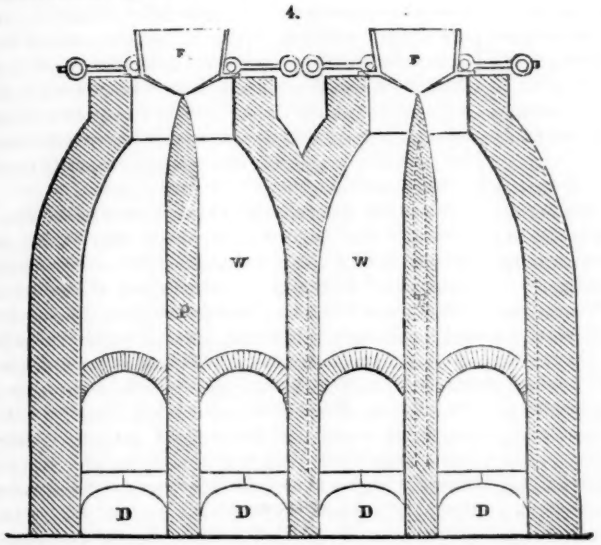
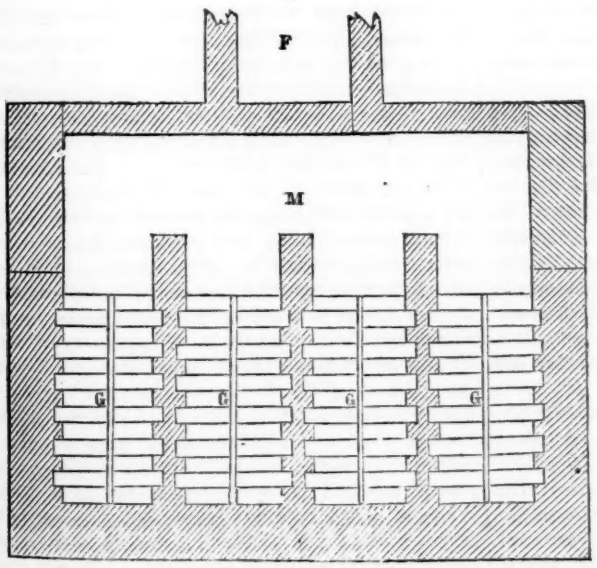


Fig. 5 is a horizontal view of the grate and its relation to the mixing chamber *M* and flue *F*.

5.



Here let the inventer speak for himself in the language of the patent last named.

"I build two furnaces side by side, each nearly square in its horizontal section. Towards the top I draw in the wall in such a manner as to form a kind of dome with a sufficient opening at top to feed the bagasse. The outer walls of these furnaces should be from 24 to 30 inches thick and built with a special view to rendering them non-conducting, the wall near the top, and the partition between the two furnaces may be thinner. In each furnace chamber there should be a partition of fire brick extending across it from front to back and rising nearly to the top, dividing it into two nearly equal parts. The whole interior of the furnace should be of fire brick. The main chamber of each furnace should be divided into two parts—upper and lower—by a fire brick grate about one-fifth the height of the furnace above the hearth, the back end of the grate being a little lower than the front. The bottom of the lower chamber may be a grate with an ash pit, but a hearth is much better.

"In each furnace at the front, on each side of the central partition and immediately under the front end of the grate should be doors for feeding wood or other dry fuel, and directly under these doors at the hearth of the lower chamber should be draught openings capable of adjustment to support combustion in the lower chamber.

"Extending across the back of both furnaces, an opening into both by flues is a mixing chamber, into which all the gases from both furnaces enter in a highly heated state, and mix and consume each other on their way to the boiler and stack. This chamber should be about one-half the capacity of all the *fire chambers*, and it should extend down about as low as the back end of the grate. The flue through which the products of combustion pass out of this chamber and under the boiler, should be in section about one square foot to forty cubic feet of mixing chamber.

"The feed openings at the top of the furnaces should be closed by doors which open inwards by the weight of the feed, but are self-closing, and do not yield to pressure from within.

"The sides of the interior of the upper or wet fuel chamber, or drying chamber of the furnace, except the front and back, are corrugated up and down, as also the sides of the central walls or partitions as shown by the dotted lines in Fig. 4, the corrugations extending down to the grate; these corrugations are for the purpose of allowing the heat to radiate upwards from the fire chamber for heating the masonry, and the wet charge, while the gases or vapors driven out of the wet charge by the heat are allowed to descend to the fire chamber or the mixing chamber. If the surfaces of this masonry were smooth the bagasse would lie against them in such a manner as to obstruct the upward radiation of the heat and the downward passage of the vapors.

"These corrugations are unneccessary in burning tan and sawdust.

"The spaces between the grate bars for burning bagasse should be about 6 inches wide for the finest grinding and twenty inches for the coarsest, and should vary between these widths according to the fineness of grinding, but for sawdust and tan much less, say from one inch to ¾ of an inch. The grate should be made of fire brick.

"The operation of my furnace is as follows: A hot fire of dry fuel is kindled in the lower or fire chambers of the furnaces, and after it has been continued till the masonry is well heated, the chamber above the grate is fed with the bagasse or other wet fuel. This hot fire in the fire chamber, especially towards the front of it under the principle mass of the wet fuel, must be preserved throughout the operation. The heat from the masonry and the fire chamber will be communicated to the wet fuel, which will cause steam and other gases to issue from it and mix with the intensely hot gases of combustion from the fire chamber, and in a short time the mixing chamber will present intense combustion and heat, the dampers of the fire chambers being partially closed. The lower part of the wet charge will by degrees become dry and charred, and will fall through the grate prepared as above unto the fire chamber, and supply or nearly supply the place of other dry fuel in preserving the fire in this chamber, and the wet fuel being from time to time supplied, will furnish in a highly heated state, aqueous vapors, which descending through the corrugations and otherwise into the fire chamber and mixing chamber, will be decomposed, furnishing much oxygen to the fire, and supply the oxygen necessary to combustion of all the combustible gases issuing from the fire chamber. If by accident the fire in the lower part of the furnace should predominate, the draught should be diminished and more wet fuel added, and, if by accident, the fire in the fire chamber should become too much cooled down, the draught should be let on, and any deficiency of dry fuel should be supplied to the fire chamber. Under proper management little or no dry fuel need be fed to the fire chamber after the operation is fairly commenced, the charred matter falling through the open grate will supply its place; and the caloric thus produced by the combustion of wet fuel will be vastly greater than from the same quantity by measure of the same fuel when dry. In the fire chamber and in the mixing chamber under intense heat, the carbonaceous gases will decompose the steam from the wet fuel, and effect complete combustion.

"When the operation is fairly commenced, if the water in the wet charge amounts to say fifty per cent. by weight of the fuel, the dampers of the fire chamber should be nearly or quite closed to exclude the air; vapor from the wet charge will then descend through the corrugations and otherwise into the fire chambers and support the combustion therein, while other portions of the vapor will enter the mixing chamber and complete the combustion there. If the fuel, however, contains much smaller quantities of water, more air in proportion should be admitted at the damper, the object being to admit no more air than will supply the deficiency of the vapor.

"In the drawings, *D* represents the chambers for the dry fuel, *W* those for the wet, *M* the mixing chamber, the dotted line *m* in Fig. 3 limmits it for the wettest bagasse, P the partition, F the feed openings for the wet fuel with their doors, B the Boiler, *b* the bridge. Little if any of the boiler should extend over the mixing chamber. If any considerable portion of the mixing chamber is covered by the boiler, its cooling influence will prevent the decomposition of the vapor and defeat the object of my invention. Great care should be observed in giving proper dimensions to the mixing chamber, for the perfection of the combustion and the efficiency of the furnace depend greatly upon it. The principle object of this chamber is to give the combustible carbonaceous gases from the fiery and the aqueous gases from the mass of wet fuel an opportunityof mingling together in such a manner and under such circumstances that the aqueous vapor will be decomposed by the carbonaceous gases, and its oxygen given out to complete the combustion of the carbon, without the introduction of air into the mixing chamber, thus saving the caloric previously communicated to the wet charge, while drying it and charring its lower portions, and avoiding the cooling influences of cold air. This can take place effectually only in the presence of a high degree of heat and in the absence of a supply of free oxygen. If this chamber be too small to receive these gases as fast as the furnace is able to produce them, the operation will of course be choked and impeded. If the chamber is larger than can be kept densely filled with these gases, of course atmospheric air will be found there at the commencement, and will continue to find its way into the chamber, and while atmospheric air is present, the carbonaceous gases will take their oxygen from that source principally, instead of decomposing the steam, and the heat in the chamber will be much diminished and the large quantity of nitrogen, 4-5ths, contained in the air, which is neither a combustible nor a supporter of combustion, will at once greatly increase the volume of gases to be sent forward to the stack, and proportionably decrease its temperature; and when the chamber becomes very large the cooling influences become so great that combustion will immediately cease, and smoke mingled with steam, oxygen and nitrogen, will go forward, thus wasting the fuel, and imparting only a faint degree of heat to the boiler.

"I have therefore fixed the size of the mixing chamber by many careful experiments—and that given above will produce the desired effect with wet bagasse. For dryer fuels furnishing less vapor, the mixing chamber should be proportionably increased in size to supply the deficiency with air, and to effect complete combustion. Rules more precise would be inconsistent with the nature of the subject.

"A large and hot fire should always be preserved in the fire chamber below the grate, and directly under the charge of wet fuel, for the purpose of driving the vapor out of it and charring its lower portion—and the grate is left much more open than in furnaces for burning dry

fuel of the same size, for the purpose of allowing the charred portions of the wet charge to fall through to supply fuel for this fire as fast as it becomes fit for that purpose, thus consuming the mass with little or no expenditure of other fuel.

"What I claim as my improvement in furnaces for burning bagasse and other fuels too wet to be conveniently burned in the usual way and well known ways is:

"First, the combination of two chambers, the one above the other, and separated by a grate, the lower one for the combustion of any known dry carbonaceous fuel, and the upper one in immediate proximity therewith to receive heat therefrom for heating and drying the charge of wet fuel, with a mixing chamber, into which both continuously and simultaneously discharge their gases before reaching the thing to be heated, for mingling and mutual combustion.

"I also claim in combination with said fire chamber and wet fuel chamber, or drying chamber, making the grate upon which the wet charge rests, sufficiently open to allow the lower portion of the wet charge as it becomes dried and charred, to fall through into the fire chamber, and keep a hot fire therein, supplying the place of other dry fuel, while the uncharred portions of the wet fuel is properly supported by the grate till dried as described.

"I also claim placing the mixing chamber of combustion in substantially the same position described relatively to the fire, and the wet charge, so that the products of combustion from the dry fuel may pass along the lower part of the wet charge, drying and charring it on their way to the mixing chamber, and reach it without being in any considerable degree obstructed or cooled by the wet charge substantially as shown.

"I wish it distinctly understood that I make no claim to any of the parts or combination above specified, except in their application to the preparation and combustion of wet fuels."

It will be observed in this mode of combustion, the wet fuel is subject to a constant process of distillation by the fire in the ash pit. The products of this distillation react on each other in the mixing chamber in the manner already described, while at the same time a portion of watery vapor is decomposed in the ash pit.

Theoretically, no more heat can be generated in this mode of combustion than is consumed in the transformation of water into steam and the conversion of fixed into volatile products. But it is by no means a matter of indifference whether the oxygen requisite for complete combustion is drawn from the atmosphere or is derived from the decomposition of water by carbon and its oxyd. In the former case, not only is there a great loss of heat carried away by the inefficient nitrogen of the air, but the diluted oxygen can never produce so intense a heat with the carbon as is the result of the reaction of the nascent oxygen with that element. Although Mr. Thompson was no chemist, he did not fail with his natural acumen to perceive this advantage, and in his earliest patent he remarks: "After ample experiments I have discovered that any results that can be produced, by the use of dry fuel are inferior (to those obtained from my process,) in proportion to the quantity used, and that results like mine can only be obtained by the use of wet fuel * * * fed into an intensely heated chamber: under such circumstances the water in the fuel in presence of the carbonaceous substances in the furnace will be decomposed, giving its oxygen to the carbonaceous matter, dispensing with a draft and its cooling and wasteful influence and rendering the combustion so perfect that no smoke is visible."

Although this mode of combustion of wet fuel is now in use on many sugar plantations in Louisiana, and in some tanneries in Pennsylvania and New York, no notice of it has so far as I am aware appeared in the scientific Journals. I am not without personal experience of its operation on a large scale, having in 1857 enjoyed the opportunity of studying carefully the management of one of Thompson's furnaces in three compartments (similar to Figs. 1 and 2) built for the combustion of wet peat. That fuel contained over seventy-five per cent of its whole weight of water, and was too wet for the best results. But with the use of one-fourth part of dry wood, even this extremely wet and otherwise valueless fuel was rendered efficient, three cords (of 128 cubic feet) of wet peat, and one cord of dry wood doing the work of four cords of dry wood in driving a steam boiler.

ON THE EMPLOYMENT OF HEAVY OILS, RESULTING FROM THE DISTILLATION OF COAL-TAR.

M. Mallet, of Paris, is the inventor of a process for the utilization of the heavy oils of coal-tar, of which the following account contains some interesting information.

The secondary products of the distillation of coal-tar and bituminous products have been hitherto very little used. The inventor has sought and found several novel modes for the employment of these substances. It commences with the oils termed *heavy*, and which are not susceptible of any utilization as essences. These oils have been heretofore employed only in steeping the cross-ties of railroads; but they cannot alone constitute a paint, for they are completely absorbed by the wood, or by the stones on which they are applied.

To adapt these oils for use as a paint, it is necessary to add a certain quantity of resinous, or gum-resinous matter. The resins are soluble in these oils with the aid of heat. For this purpose the oil is placed in a boiler, and the resin or gum resin is added in fragments and well mixed. The quantity of resinous matter to be added varies according to the necessity; it is generally from 50 to 100 parts for 100 parts of the oil in question. The solution obtained is strained through a woolen filter to separate all solid matter, and this solution is in a state to be directly employed as a plaster, or as an oil for the mixing of colors which are used in ordinary painting, and a dilutent for the same colors after they are mixed.

These oils from tar have a brown color, very deep in the crude state, and this tint injures the tone of the colors, with some few exceptions. This is remedied to a great extent by purifying the oils by known methods. The quality of the resins also influences the colors.

In this process it is the intervention of resinous or analogous matter, in which consists the specialty of the invention for utilizing for painting, oils more or less heavy extracted from coal-tar. The paint thus obtained leaves generally after two or three coats, a varnish on the objects it covers. These paints from the resinous solution, are applied not only to wood, but also to stone, stucco, and plaster, earthenware, and especially to tiles, flower-pots, metals, articles of basket ware, and as a cement for certain detatched objects, in place of that ordinarily used, such as brushes and pencils.

To expedite the drying of these paints, in place of the spirits of turpentine, a lighter oil from tar may be used in order to render the coal-tar oils more siccative by the known means. The resinous solution may also serve as a varnish on ordinary paint, or on metals in their natural state

A black color, very fine, very economical, and much superior to crude tar, is obtained by dissolving rosin oil in the heavy oil of coal-tar in about equal proportions. These resinous solutions may also be applied for the purpose of rendering cloths impermeable to water. To effect this object the quantity of rosin used is limited; so little as one-twentieth sufficing sometimes. To give more plasticity to the solution, it may be necessary to add to it a small proportion of caoutchouc which is soluble in the oils of coal-tar, and in case of necessity a quantity of the heavy oil destined as a stucco may also be added.

The naphthaline may be employed as a common grease when mixed with paraffine or paraffine oil, or indeed any fatty body, and a small quantity of lime in powder may be mingled with it, say about two per cent. The heavy oils may also serve to make a common grease for lubricating purposes, by adding while hot, two per cent. of dry soap in powder, and stirring the mixture until it becomes the consistency of jelly.

In making the solution of naphthaline in the resin after liquifying by a gentle heat, and on mixing the whole until it solidifies, a substance is obtained, melting at a temperature much inferior to that of the fusion of resin, but which at ordinary temperatures is completely solid. It serves under certain circumstances as a cement; applied hot—an artificial glue.

The precautions which are necessary to be observed in the preparation and application of this matter, are caused by the tendency which naphthaline possesses to crystalize. It is possible to vary the proportions of naphthaline and rosin, the naphthaline dissolving at least its weight of rosin.

The heavy oils and naphthaline may be burnt to produce lamp-black, and in the country, in the Spring of the year, so form an artificial cloud to destroy the transparency of the air when the pernicious effects of a hoar frost are feared.—*L'Invention.*

LOSS OF GAS.

In the metropolitan supply of gas, it would seem that nearly one-quarter of the entire manufacture is unaccounted for; in other words, that the gas companies receive pay for only three-quarters of the stock they produce; this loss being occasioned by the various processes of condensation, defective meterage, fraud, and leakage.

After giving full allowance for loss from all other causes, that from leakage alone, Professor Spencer sets down at 630,000,000 cubic feet per annum. That is, a quantity of gas equal to one-tenth of all that is burned in London, escapes from the mains and is absorbed into the street earth, giving that blackened appearance and gas odor always observable in the subsoil of leading streets whenever turned up. Were this immense loss of gas—which in value is equal to a dividend of 3½ per cent. per annum on the entire subscribed capital of all the thirteen metropolitan companies—a mere matter of "profit and loss," the circumstance would be of little interest to any but the gas shareholders themselves. To the London public, however, it involves consequences most serious. The joints of the mains are the outlet of this fearful escape; and Professor Spencer's arguments make it pretty clear that this arises mainly from defects inherent to the mechanism of the joint now in universal use; and that is the thing that it is now especially sought to bring under notice.

Gas mains and water mains are formed of a series of iron tubes of about 9 feet long, each tube having one widened end forming a socket, the other end being narrowed; and in laying, the narrow end of one tube is passed about four inches into the socket of the next, just as the jointing of a flute or clarionet; and just as the joints of these instruments are not airtight until wrapped with cord, so it is with the pipes for the conveyance of gas. The small end of the tube is less than the socket into which it goes, and when placed in concentrically, leaves a space of half an inch or so all round. Into this interstice a piece of hempen rope is pressed tightly, similar to the process of caulking the seam of a ship; and the orifice of the opening is then plugged with molten lead. As left by the workmen, this joint is probably generally gas-tight, and if it remained in the state as finished, there would be little to complain of; but it would seem every joint soon becomes more or less leaky, the fitting appliances (hemp and lead) being insufficient to the permanent retention of the gas. Thus, first, as to the hempen calking portion of it; if the hemp could be retained in a moistened and swollen state, as is the case in its similar employment in the jointing of water mains, it might be successful to its intent here; but the nature of the contents of the gas mains, on the contrary, is to dry and shrink the hemp, and however tightly the caulking may have originally been performed, the gas after a while freely permeates it. And, secondly, as respects the leaden plugging, the failure of this is attributable to the contraction and expansion of the metals, by the alternations of cold and warmth. Of course, iron pipeage for gas, though situated some two or three feet beneath the surface, is subject to this same universal law. It is a well known fact that the iron rails of a railway expand in warm weather, on which account a space of about a quarter of an inch is seen to be always left between the ends of each rail. In warm weather the tubes of the Britannia bridge measure several inches in excess of what they do in extreme Winter, for which contingency ample provision is made at either end. Although what is just said applies to longitudinal expansion and contraction only, yet expansion and contraction of metals takes place also laterally in the same way, and hence, more particularly, the disturbing effect on the joints of the gas mains. For example, take the joint of a gas main that has been laid during warm weather, when its diameter and length are at their maximum; as soon as the coldest weather sets in, the size of the main, including the joint, will have reached its minimum. But in its progress from one extreme to the other, it is evident that the joint must undergo disturbance, even though the lead and iron should expand and contract in an equal ratio; this latter, however, is not the case. Lead is but little acted on in this way; its expansion and contraction as compared with cast iron, is only as 1 to 3. Thus however tightly lead may be driven into the interstice of the joint originally, the joint subsequently becomes

liable to disturbance from the operation of this law. Remembering, too, that there is no chemical adhesion between the iron and the lead, as in soldering, the joint being altogether mechanical.

It will now be obvious that a chief defect of the lead and iron joint for gas mains, arises from this important physical difference in the nature of the two metals. Notwithstanding the disturbance to which this joint is subjected by every change of the temperature, it is clear that if the metals composing it contracted and expanded in equal ratio, less injury would arise in practice. But it is thus: the lead and iron are each contracted to a minimum in Winter; but as the contractile power of the lead is not equal to that of the iron, it is obvions that the latter in contracting will press the softer metal into a less diameter than it would have assumed naturally. On the return of warm weather, when the iron portion of the joint becomes expanded to its original diameter, *that originally belonging to the lead is never recovered*, consequently space is left between the iron and the lead sufficiently large to allow of the constant escape of the gas complained of.

According to ordinary ideas of space, openings in themselves so minute as are here implied, may appear inappreciable in practice; yet, taken in connection with the extremely subtle nature of gas, more especially the best gas, they are far from being so. It is a well known fact in chemical practice that apertures sufficient to exclude air and water will not exclude gas. A cracked receiver for example will hold water tightly enough, though it will allow gas to escape freely.

The fact of this mode of jointing gas and water mains, continuing to this day precisely the same as has been in use in the metropolis ever since the time of the first application of iron to the purpose, nearly fifty years ago, considered in connection with the fact of the joint being notoriously defective, naturally suggests the question: Has the working in iron which has made such wondrous advance in the past half century done nothing for the improvement of gas mains? The metropolis answers no; but Liverpool, Manchester, and Leeds, say yes. Gas mains with joints denominated "bored and turned," have for some years been in use in these great towns, with the most successful results, which a few recorded facts from Liverpool, where they have been longest employed, sufficiently demonstrate.

The tubes for the mains, with the joint here referred to, are planned with their diameter a little larger at one end than at the other. After the casting the tubes are subjected to a finishing process; that is, a few inches of the interior of the larger ends are bored and ground, which is, in effect like preparing the neck of a bottle to receive its stopper. The exterior of the smaller end is then lathe-turned, and fitted into the interior of one that has been previously bored. Thus the small end may be looked on as a stopper made without difficulty to fit into the neck of its fellow, every joint being so finished and completed in the foundry as at once to fit air-tight, with precision and accuracy; after which each pair is numbered, so that in laying, the respective pieces may be joined together without mistake. A coating of unctious cement is applied to the ends on laying.

Since the adoption of this species of joint in Liverpool, the loss on the manufacture of gas from all causes together has been reduced to 11 per cent. as against 22 per cent. in the metropolis, which low rate has been by degrees arrived at apparently just in the ratio that the replacing of the old pipeage by the new has progressed. And it has been observed that in places where the old pipes have been long disused, the street earth has become comparatively without the odor of the gas; as also that the water, the mains of which lie side by side with those of the gas, is now in no way affected.

Nor is the fact of the rapidity with which a line of main on this construction can be laid, undeserving of notice,—a rapidity, it is reported, equal to keeping pace with the most expeditious opening of the ground by one set of men, and the filling in behind by another.

At the present moment the metropolitan gas companies are each, to a greater or less extent, renewing their trunk mains in much larger calibre.

These prodigious pipes are being put together on precisely the same faulty principle as heretofore, a circumstance which suggests the question—apart from the consideration of the subways,—are the gas companies doing justice to the public in their thus persevering in laying down these defective conduits? in the full knowledge, at the same time, that more perfect constructions are practicable at a little additional cost; and thus perpetuating the existence of one of the most fearful nuisances the metropolis is subject to.

Take the Regent street case as an example; here two 10 inch mains are being removed and replaced with others of 20 inch diameter. Now it is a principle in hydraulics that a tube twice the diameter of another will permit the passage of five times the quantity of liquid of the lesser one, (the same law, it is presumed, applies in the case of gas); hence, it follows as a certainty that from this ten-fold increased flow of gas through the street, there will be at no distant period, when the new joints shall have had time to become leaky—the inevitable consequence of their "make,"—a corresponding increased escape of gas into the subsoil of the road; by no means an agreeable prospect for Regent street. It is, however, a verification of the old adage, that "that which is everybody's business, is nobody's."—*London Builder.*

FOREIGN NEWS.

ENGLISH PATENTS FOR PURIFYING GAS.

A patent under date June 30, 1860, has been granted to Richard Laming and Charles Smith for *Improvements in purifying certain gases and liquids from sulphuretted hydrogen*, in which the oxides of manganese and iron are the substances employed. These bodies are prepared in a state of minute division by precipitation from their solutions, and if necessary by subsequent grinding.

A prominent principle in the theory of the patentees, is that the hydrated oxides of iron and manganese are by their peculiar molecular arrangement more susceptible of chemical activity than the anhydrous oxides—the water which is chemically combined with the former, adding a greater volume to the mass and extending its porosity, thus offering an enlarged surface for purifying action. Both the oxides of iron and manganese have been used before in this manner, and nothing new is claimed in their application; but the innovation consists in their selection and preparation.

In preparing the oxide of manganese, the native black oxide is selected, and care is taken to obtain that which is freest from earthy impurities, and most easily reduced to powder. It is then ground either dry or wet, and in order to obtain as fine a powder as possible, it is next subjected to elutriation, by which the finer particles remaining suspended in water, are easily removed from the coarser, and flow off to a separate receptacle, where after repose they subside and are dried. For use, the oxide is made pervious by being mixed with sawdust or other porous matter, and placed while damp in dry purifyers in thick layers, where eventually the oxide is converted into the sulphide of manganese. The sulphide is afterwards exposed to the action of the atmosphere, whereby it is revivified, and may be used in like manner an indefinite number of times. Or, in place of this alternate use and exposure of the sulphide, it is proposed to mix with the gases a volume of oxygen gas about equal to the sulphuretted hydrogen contained in it, or instead of oxygen gas, about five times the volume of atmospheric air, by which means the action of the charge may be continued for a much longer time.

In the employment of oxides of iron, the inventors prefer hematite native oxides, and other oxides which are produced in various industrial operations, those being selected which are purer and more pliable than the remainder, and having been pulverized as in the manner above described, they may be used either alone in the purifiers, or be mixed with 5 or 10 per cent. of slacked lime or chalk, which retards their conversion into the subsulphate while being revivified.

The claim for this invention are for the use of oxides of manganese to effect the removal of sulphuretted hydrogen from the gases resulting from the distillation of coal and other matters, and secondly purifying gas and other liquors, by means of native or artificial oxides of manganese in an impalpable powder, including the repeated use of the revivified oxide. The claim also includes the purification of gases by the same oxides simultaneously with the use of oxygen gas or atmospheric air, mixed with the gases prior to their purification.

The claim as regards the oxide of iron is its use in the state prepared as above, in contradistinction to its preparation in the ordinary manner, whereby a portion of the oxide is left in a coarse powder unfit for use. This claim also includes the revivification of the oxide and its repeated use.

Thomas Richardson has obtained a patent, dated July 3d, 1860, for "*Improvements in purifying coal gas*," in which metallic iron in a fine state of division is employed either alone, or mixed with a porous material, such as lime, magnesia, or their sulphates in the usual purifiers.

To obtain the iron in a minute state of division the following modus operandi is observed. Iron cylinders about three feet long, with a rim of four inches thick, and bore of one inch in diameter, are taken and placed *vis-a-vis* in a lathe. The rims are then placed in contact, and the iron is ground to powder while the cylinders are revolving in opposite directions, making five hundred to a thousand revolutions per minute. Or old metal tubing which is soft enough to admit of pulverization by grinding, or scraps from iron turnings may be sifted through a sieve of 1000 meshes to the square inch, and the resulting dust employed. For use, this fine metallic powder is moistened with water, and either alone, or mixed with about three times its own bulk of sawdust, charcoal powder, coke dust, or other porous materials, is placed in dry purifiers and used in the same manner as oxide of iron. Or it is mixed with pulverized sulphate of lime, or sulphate of magnesia. After the chemical activity of the iron has been impared by continued use, it is to be heated to redness, after which it may be repeatedly employed.

A patent dated July 7, 1860, has been granted to John Leslie, of London, for *Improvements in the manufacture of gas.* In distilling coal or other substance, the gas instead of being conducted from the upper part of the retort in the ordinary manner, and thence into the hydraulic main, is made to descend from the retort at the lower part, into a chamber, and thence conducted from the upper part of the chamber by means of a pipe to the purifiers. The chamber may be of any suitable form, having an outlet at the bottom, and a syphon pipe to extract the condensed fluid, and also a pipe at the top leading to the purifiers. Each retort should have a valve to shut the entrance into the chamber.

In purifying gas by this process, sulphate, or other salt of copper, is used by saturating with its solution, wood-shavings or other porous material; the purifying agents are from time to time subjected to the action of atmospheric air to revivify them and render them serviceable for further use. The purifying materials are placed in a tower or chamber about six feet in height, and two feet diameter for one retort, the gas being admitted at the bottom and conveyed away from the top.

STEAM GALLEY-STOVE.—A new invention under this name, which combines a number of useful advantages, was exhibited lately, consisting in a combination of the galley cooking-stove and steam engine, and the advantages claimed are:

That it is capable of generating sufficient steam, while cooking, to work a Worthington steam-pump or bilge-pump in case of fire or leak in the vessel; it will hoist in and out cargo; sailing vessels can whistle with it in a fog; it will warm the cabins and whole vessel by means of steam-pipes; in addition to cooking in the stove, India-rubber tubes may be stretched to any part of the vessel and do cooking (with a small apparatus) for several hundred persons; it will generate steam or not, at pleasure; it will distill all the fresh water that will be required for passengers and crew; it will cook and perform all the other work mentioned with one half the fuel of any other galley; it is so simple that any person can manage it; there is no danger of fire to materials ordinarily coming in contact with it.

A number of underwriters from New-York, gentlemen from the Navy-Yard, and ship captains were present to inspect the invention, and it is understood that a report will be made before the Board of Underwriters. The stove exhibited weighs about 1,500 pounds; it holds 700 gallons of water, throws 100 gallons of water per minute, cooks for 300 to 500 persons, its ordinary pressure of steam is 20 to 60 pounds, and its maximum pressure is 200 pounds. It may be adapted, however, to different sizes of vessels and houses. In construction the steam galley stove consists first of a circular stove, having three small separate fire-places, all surrounded by water, behind which is the large bake-oven, and where ordinarily the stove pipe rises to the ceiling an upright steam-boiler takes its place, inside of which the smoke finds its way upward through a flue.

COAL OIL IN KENTUCKY.—The *Paris* (Kentucky) *Flag* states that mineral oil, in considerable quantities, has been discovered in that State, near the Levee, beyond Flat Rock, in Bourbon County,

THE AMERICAN GAS-LIGHT JOURNAL is published on the 1st and 15th of every month and is specially devoted to

LIGHT, HEAT, WATER-SUPPLY, AND SEWERAGE.

Its purpose is to ascertain and make known all new discoveries in the science and economical application of LIGHT, and promote thereby the interests of companies and consumers; to encourage and aid the introduction of PURE WATER from Lakes and Rivers into Towns and Cities, and to improve the system of SEWERAGE, VENTILATION, and DRAINAGE everywhere.

Incidentally with these results, the business of all Gas and Steam Fitters and Plumbers; the erection of Gas-Works and Water-Works; the consumption of Coals, the manufacture and consumption of Coal-Oils, the manufacture of Gas-Pipe, Water-Pipe, Steam-Pipe, Gas Fixtures, Gas-Meters, Water-Meters, Retorts of iron and clay, and their varied apparatus; of Drain Pipes, Ventilating, Heating and Dredging Machines will be increased immeasurably.

THERE ARE 20,000 CITIES AND TOWNS IN THE UNITED STATES, CAPABLE OF SUPPORTING GAS WORKS, WHILE THERE ARE NOT 400 GAS-WORKS IN OPERATION IN THE WHOLE COUNTRY!!!

New works are now springing up, however, every week, and they will continue to increase rapidly hereafter.

Advertisers of Gas-Coals, Coal-Oil, Water, Steam, Sewerage and Ventilating apparatus, and of Iron and Brass manufactures, &c., will find the AMERICAN GAS-LIGHT JOURNAL the most desirable and efficient medium of any in the United States, going, as it does, direct to the parties interested in those subjects.

TERMS—CASH IN ADVANCE.

SUBSCRIPTION—In the U. S. and British Provinces, $3 per annum.
Do. To English subscribers..... 12s. "
Do. To French and German subscribers, 16f. "
payable to our Agents or Bankers, as below.

ADVERTISEMENTS—According to position and space occupied. For particulars of which please address the Proprietor.

☞ Remittances by mail to be addressed to the proprietor,

JOHN B. MURRAY,
Rooms of the AMERICAN GAS-LIGHT JOURNAL,
Nos. 254 and 256 Canal street, NEW-YORK CITY.

AGENTS OF THE AMERICAN GAS-LIGHT JOURNAL.

FOREIGN.

Germany..... B. WESTERMAN & Co., of New York.
Great Britain.. WHEATLEY, STARR & Co., 156 Cheapside, London.
TRUBNER & Co., London.
Paris, France..... LE JOURNAL DE L'ECLAIRAGE AU GAZ, 24 Boulevard Poissonnière.

BANKERS IN LONDON.

WHEATLEY, STARR & CO., 156 Cheapside, to whom all payments for our account must be made; and who will forward to us all packages, samples and orders, on payment of charges.

DOMESTIC.

The AMERICAN GAS-LIGHT JOURNAL can be purchased of all the newspaper and periodical dealers in the United States and Canada.

THE
AMERICAN GAS-LIGHT JOURNAL.

PUBLISHED ON 1ST AND 15TH OF EVERY MONTH.

PROPRIETOR, JOHN B. MURRAY. } { EDITOR, C. ELTON BUCK.

FRIDAY, FEBRUARY 15, 1861.

A very important process in the manufacture of gas, which too many engineers are apt to overlook, is that of condensation or refrigeration—a too limited attention to which is productive of great irregularities in the apparent amount of gas produced, as well as other serious inconveniences. There are some superintendents of gas-works who consider the most important matter after the generation of gas, to be its cleansing in the purifiers, and who pay little or no attention to properly cooling it before it enters these vessels; thus almost ignoring a plan of systematic condensation which is such an essential process in well regulated establishments. To those who have made the manufacture of gas a subject of philosophic inquiry, and have practically demonstrated to their own satisfaction the *rationale* of condensation, no argument will be needed to prove its importance. On the contrary it assumes a place of primary consequence, and, in properly conducted gas-works, that degree of attention to which it is entitled is bestowed.

In taking a correct view of this subject, it is indispensable that some knowledge of the laws of the action of varying temperatures on gases, should be understood. It is well known that all bodies in a natural state, whether solids, liquids or gases are expansible by heat. The converse of this is equally true. Liquids exhibit a greater tendency to expansion than solids; and gases greater than liquids. Gas, as it comes from the hydraulic main, having but recently escaped from the heated retorts, is, as a matter of course, in a highly rarified condition and of an elevated temperature, and this heated state must be modified and reduced, not only that the volatile tarry and bituminous impurities which have been borne along with it may be condensed and removed, but also that its immoderate volume may be diminished, so as not to conflict with its correct registration at the station meter. Nor is this all—the temperature of the gas as it is conducted to the purifiers should be uniform and should not vary far from 60° F, in order to ensure the most energetic action of the re-agents disposed there to abstract the impurities.

In order to avoid two extremes, the principle of condensation should be thoroughly studied and its action carefully noted. The fault which most engineers are liable to commit, is, that too little attention is paid to this process, and the gas leaves the condensers and enters the purifiers in a still rarified condition, and consequently when it leaves the purifiers and passes on to the station meter, a much larger amount is actually registered than would have been the case had proper attention been paid to the operation of the refrigerating apparatus. The inconvenience and irregularity in the accounts which this carelessness occasions can be readily appreciated, and may be relied on as being a cause of the discrepancies which frequently occur, and for which no satisfactory reason can be given.

The expansion of gas by heat is no trifling matter, as some seem to think by so utterly ignoring the practical effects of condensation. The laws of philosophy prove that gas is expanded one four hundred and ninetieth of its bulk, for every one degree of heat above 32° F; and one thousand cubic inches of gas at 32° expand to one thousand three hundred and sixty-six cubic inches at 212° F. These figures serve to show what stress should be laid upon the importance of condensation, and indicate that the temperature of the gas during the various processes to which it is subjected, should be ascertained and regulated accordingly.

Another result of imperfect condensation is the subsequent deposition of bituminous and tarry matters in the mains, which should have been removed by the action of the refrigerators, had they received their due share of attention. This is often a cause of serious annoyance, not only to gas-light companies, but also to consumers, who are incommoded by obstructions in the pipes, which are sometimes difficult of removal.

On the other hand condensation may be and sometimes probably is carried to too great an extent, in which event the illuminating power of the gas is materially diminished, by the hydro-carbon vapors which form its most luminous constituents being condensed. From the statements of some writers, the temperature cannot be reduced below 50° F. without danger of the loss of these valuable compounds, although the exact degree at which these are deposited, varies with the different kinds of coal employed. Gas made from cannel coal will, generally speaking, bear a considerably lower degree of temperature than that produced from other sources.

These facts demonstrate the importance of a just appreciation of the principles of condensation, and while they prove the evil results of neglecting them, it is evident that with a little care and application, these inaccuracies may be overcome. The temperature of the gas should be taken at various points, and the gas thermometer should be an indispensable instrument in the works, but particularly at the outlet of the condenser. By calculation from the ascertained temperature, the density of gas is determined by the thermometer, and it is very important to know its indications, so that the condition of the gas may be regulated accordingly. This subject is worthy of the serious consideration of those who are engaged in the superintendence of gas-works, who should remember the axiom that "good condensation is half purification."

IS OIL OF VITRIOL A PRODUCT OF THE COMBUSTION OF GAS?

The oil of vitriol controversy in which leading chemists in England were arrayed on either side a few years ago, is still an unsettled question in the minds of certain scientific men. When Dr. LETHEBY first placed such an emphasis upon the announcement that oil of vitriol in quantities capable of inflicting injurious effects was largely generated in the combustion of ordinary coal gas, some excitement was caused, and a general alarm was felt, particularly by those who feared its deleterious influence on works of art, books, and textile fabrics. This alarm is still felt by some individuals who are apprehensive of harm being done to delicate substances, and much more importance is attached to the subject than it really deserves.

A knowledge of the usual impurities existing in coal gas, will at first induce the belief that sulphuric acid is generated during its combustion to a greater or less extent. The bi-sulphuret of carbon is the compound which undergoing combustion, gives up its sulphur to the oxidizing influences of the atmosphere, and is resolved into sulphurous acid, which in a short time absorbs from the surrounding air an additional equivalent of oxygen, becoming sulphuric acid, but existing of course in a very attenuated state. Dr. LETHEBY takes this view of the subject, which is correct as far as it goes, and hence his opinions, urged with so much persistency, as to the deleterious effects of gas when burned in apartments where easily injured articles are exposed.

In considering this question, it must be remembered that bi-sulphuret of carbon is not the only impurity existing in gas, but in addition to it, carbonic acid, ammonia, and other bodies are found. The affinity of ammonia for acids is well known, and it is in the opinion of the eminent gentlemen who deny the generation of free sulphuric acid during combustion, to the presence of this substance that the tendency to the production of this destructive acid is overcome, its baneful effects being completely neutralized by the presence of the alkali, which uniting with it, forms sulphate of ammonia, a comparatively inert salt.

These are the two sides of the question, each of which has its advocates, who contend for the correctness of the view they respectively take. Mr. LEWIS THOMPSON, who is widely known on account of his extended researches on the subject of gas, firmly declares that no oil of vitriol is produced during the combustion of gas, and has practically demonstrated this fact to the satisfaction of many, who now feel free from the serious apprehensions in regard to its effects, which were previously entertained.

On the other hand, Dr. A. NORMANDY, a chemist and author of distinguished reputation, conducted a series of careful experiments with a view of arriving at the truth, and his results satisfied him that sulphuric acid in a free state is produced to some extent when gas is burned. Other chemists have given this subject their attention, and the same difference of opinion exists in regard to the deductions from their experiments.

But admitting for the sake of argument, that all the sulphur in the bi-sulphuret of carbon which exists as an impurity in illuminating gas, is during the process of combustion, converted into sulphuric acid, what grounds are there for serious apprehension? In this city, at least, the gas is of such a pure character compared with English gas, that little or no harm need be feared from its combustion in a sick room, or where delicate works of art are placed. By the experiments of Dr. TORREY, the results of which are given on page 137, of this volume, the amount of sulphur in the gas of the Manhattan Gas-Light Company, combined with carbon as bi-sulphuret of carbon, is but 2·03 grains in 100 cubic feet. As the burner generally adopted is that known as the fish-tail, consuming five cubic feet per hour, the insignificant amount of sulphuric acid produced may be readily calculated. Thus each five feet burner would generate per hour, the trifling quantity of *twenty five hundredths* of a grain. But we have only admitted the conversion of all the sulphur into sulphuric acid during combustion, for the sake of argument, which is admitting too much for the truth of the case. Probably the ammonia is not present in sufficient quantity to neutralize all the sulphuric acid formed, but it certainly exerts a marked influence in diminishing the amount, and the almost inappreciable quantity of this substance

mentioned above, is very materially reduced. Thus the inference may be drawn, that gas which has been rendered as free as practicable from impurities, does not generate compounds which are sufficiently prejudical to justify any apprehensions. It is safe to say that far more injury is done by the defective construction of fire-places, hot-air furnaces, flues &c., and that the sulphurous vapors ejected from these places, are in greater quantity than would result from a long continued combustion of gas.

REVIEW OF NEW BOOKS.

Handbuch für Steinkohlengas-Beleuchtung, von N. H Schilling, Ingenieur und Director der gasbeleuchtungs gesellschaft in München. Mit einer Geschichte der Gasbeleuchtung von Professor Dr. Fr. Knapp, München 1860 *verlag von Rudolph Oldenbourg.*

Mr. Schilling, is a practical gas-engineer, and editor of our German contemporary the *Journal für Gasbeleuchtung*. In this work he has exhibited the thoroughness with which he is acquainted with the details of his profession, and has succeeded in producing a book which will be received with approbation, as well by the scientific student, as by those who desire practical instruction on the subject of gas-lighting. The introduction written by Dr. Knapp, who is widely known as a technological author, gives a concise history of gas-lighting from the period of its introduction.

The labors of Mr. Schilling commence with the consideration of coal as a material for gas-making, and after dwelling upon this subject, he takes up the various processes of the manufacture, and explains them step by step in an intelligible manner. The chapter on retorts in particular may be instanced as an evidence of thorough preparation on the part of the author, and the other parts of the volume exhibit the same conscientious attention to details, and minute knowledge of all the practical bearings of the subject.

The typography and illustrations of this work surpass anything of the kind we have ever seen. The lithographic drawings especially, are executed in that high style of art in which the Germans excel, while the woodcuts are of the finest description. Altogether the *Handbuch* of Mr. Schilling is worthy of the highest commendation and deserves a wide circulation. Every gas-engineer's library should contain this work for the sake of the illustrations if not for the subject matter. It is about the size of Clegg. We take orders for it; price ten dollars.

THE NEW WATER WORKS OF NEW ORLEANS LA.—A pleasant and interesting meeting of the stockholders of this company and their guests, took place a few days ago, in the buildings containing the new and much improved works, on Tchoupitoulas street. A handsome collation was laid, and congratulations were exchanged *ad libitum*. The building which contains the new pumping apparatus is about forty five feet square and forty in height, and is very strongly erected. The immense weight of the engines employed in the pumping required that such should be the case. Their weight is four hundred and fifty tons. They are from the celebrated Novelty Works of New-York, and cost $55,500. They have a capacity to pump *twelve millions of gallons every twenty-four hours*, and the force attained is sufficient to raise the water to the topmost story of the most lofty edifices in the city. The successful finishing of these works was greeted with much pleasure by the citizens, and great praise given to the Water-Works Company and its efficient President.

REDUCTION IN THE PRICE OF GAS AT SACRAMENTO, CAL.—The Superintendent of the Gas Works gave notice that on and after the 1st of February inst. gas would be furnished at the rate of *nine dollars* per thousand cubic feet. We are informed that this reduction in price would have been made earlier had it not been for the fact that coal is now higher in price than it has been for seven years.

The price of Gas at Sacramento has been ten dollars per 1,000 c. f., hitherto. What would New-Yorkers who grumble at $2,50 per 1,000 c. f., say to that?

EXPLOSION OF GAS.—An explosion occurred at Platt's Music Hall, San Francisco, on the evening of Nov. 28. The gas was turned on, and not lighted. On going into a closed room with a light, two men were shockingly burned and wounded, the windows were blown out, and the furniture wrecked.

RESTORATION OF CAPT. M. C. MEIGS AS CHIEF ENGINEER OF THE WASHINGTON, D. C., AQUEDUCT.

We are happy to announce that another act of the late "honorable" and *always scoundrel*, JOHN B. FLOYD, ex-Secretary of War, has been annulled by the restoration of Captain M. C. MEIGS of the Corps of Engineers to the high position of Chief Engineer of this great national work.

Mr. HOLT, the present able Secretary of War, has won for himself an enduring fame as an honest man and faithful servant of his country, since he took up the loose ends of the Department, prostituted by the fellow FLOYD. This precious scamp is now under indictment by the Grand Jury of the District of Columbia for stealing the Government funds, and the joke of the thing is that he removed Captain MEIGS from the Aqueduct Department, and ordered him to a distant post, because the Captain endeavored to check the thief in his career of robbery.

Our readers will find on page 189 of this volume, the case of Captain MEIGS *in extenso*.

BUSINESS DEPARTMENT.

The Astoria, N. Y., Gas Works are advertised to be sold on 28th inst. Here is an excellent chance for a capitalist wishing an agreeable and profitable occupation with twenty years monopoly.

A Gas-holder is also advertised for sale by a gentleman of Philadelphia, who offers a great inducement in its reduced price.

Messrs. JOSEPH NASON & Co. insert their card as manufacturers of heating apparatus and gas and water tubing, to which particular attention is directed.

The card of Mr. JOHN W. FARMER, plumber and gas fitter is inserted by ourselves, free of charge to Mr. FARMER, whom we have never seen, but whose name has long been familiar to us as a friend of his race. Mr. FARMER has, by close attention to business and honest administration of it, amassed a handsome property which he has for two or three years past devoted to feeding the poor. At his residence, No. 47 Ludlow street, long tables are spread with soup, meats, vegetables, &c., which are freely partaken of by all who wish, every afternoon. In the Winter of 1857 no less than 230,893 meals were given away, costing $20,000, besides supplying at their homes 1,084 families and 811 sick persons, and finding employment for 1,171 mechanics. No questions are asked of any visitor, and the only favor expected of them is that they will come again. The Winter of 1858 was not so severe upon mechanics as 1857, but Mr. FARMER'S good work is continued, and at his sole expense; several offers from wealthy citizens to furnish all the money required having been refused by him. Such a FARMER is sure to have *good crops*.

We ask particular reference to an advertisement for a situation, signed R. F. P. The advertiser is a superior man, and will fill with credit and ability any position. His credentials in our possession are of an unqualified character.

The Hon. The Lighthouse Board issue several official notifications for public reference.

THOMPSON'S CHEMISTRY.—We have just received a few copies of this able work. There may be ten copies for sale after filling orders already received. Price $2.

Messrs. CODE, HOPPER, & GRATZ'S card respecting lots of old gas-meters sent them for repairs is for the especial attention of Superintendents of gas companies.

VITRIFIED SEWER PIPES.—Samples of Mr. D. E. Hill's stoneware sewer-pipes have been received at these Rooms, where they attract the attention of visitors interested in the water and sewer departments of cities.

UNION WORKS, BALTIMORE, MD.—Messrs. POOLE & HUNT, proprietors of these extensive iron works, have presented us with a beautiful and spirited colored lithograph of their establishment, from which it is clear that all the enterprise of the nation is not at the North. In addition to gas-works castings, Messrs. POOLE & HUNT build fire engines, railroad cars, and all other heavy machinery.

REPORTS OF GAS-LIGHT COMPANIES.

OTTAWA, ILL.

Herewith I send you our Tenth Semi-Annual Report in brief:

Consumers 228	
Sold in 1860, 1,807,200 feet of gas, $4 per M.....	$7,228 80
Expenses for coal, lime, labor, and retorts.....	4 586 98
Net profit in 1860*.....	$2,641 82

We have no liabilities. The works are in perfect order; three benches clay retorts in good condition; have worked two benches about eighteen months. In the Winter we run two benches, and one bench in the Summer. Our consumption in 1860 was 750,000 feet less than in 1858; the hard times are the cause of it. We have a good prospect of improvement in the future. Our town is growing again, and we shall increase our number of consumers considerably during 1861.

Yours truly,

LEVI MASON, *Secretary*.

* The capital of the Ottawa, Ill., Gas Co. is $45,000, so that the profits are about 7 per cent.—ED.

EXPENSE OF LIGHTING THE CITY OF NEW YORK.

We are in receipt of the Fourth Quarterly Report of the Street Commissioner up to and including Dec. 31, 1860, from which we extract some interesting details connected with the expense of public lighting of the city.

Major Gustavus W. Smith, the Street Commissioner, (late of the United States Army,) has earned for himself an imperishable name for integrity and energy during his administration of his arduous duties. The Bureau of Lamps and Gas is under the efficient charge of Mr. William Gayte, the superintendent of that department, to whose intelligent report we are indebted for the following particulars.

GENERAL RECAPITULATION OF EXPENSE OF GAS-LIGHTING.

AMOUNTS PAID	FIRST QUARTER, Ending March 31, 1860.	SECOND QUARTER, Ending June 30, 1860.	THIRD QUARTER, Ending Sep. 30, 1860.	FOURTH QUARTER, Ending Dec. 31, 1860.	TOTAL.
FOR GAS TO					
Police Department	4,431 16	3,631 97	3,205 31	3,952 24	15,219 68
Public Markets..	2,211 74	1,994 65	1,793 85	1,876 53	7,876 77
Bell Towers.....	52 87	118 19	87 81	115 12	374 05
Public Offices...	888 28	1,191 70	773 67	644 59	3,498 24
For Supplies to Public Lamps.	68,026 84	98,990 91	96,354 23	131,753 24	395,125 22
For Gas to Fire Department..	19 78	30 00	4,596 75	4,614 50	9,261 03
Total.....	$75,640 67	$105,956 42	$106,811 68	$142,946 22	$431,354 99

COST OF LIGHTING THE PUBLIC LAMPS DURING THE YEAR 1860.

	New York Company.	Manhattan Company.	Harlem Company.	Total
January.....	6,786 22	18,425 83	4,334 40	29,546 46
February.....	6,775 21	18,420 83	4,334 40	29,530 44
March.....	6,750 25	18,511 25	4,334 40	29,595 90
April.....	6,748 18	19,203 33	8,589 75	34,541 26
May.....	6,814 30	18,757 50	7,166 60	32,738 40
June.....	6,791 44	18,805 00	5,690 80	31,287 24
July.....	6,810 19	18,712 50	5,752 20	31,274 89
August.....	6,776 71	18,765 00	5,640 00	31,181 71
September.....	6,779 21	18,790 00	5,688 05	31,257 26
October.....	6,807 47	19,596 25	5,650 00	32,053 72
November.....	6,762 61	19,083 34	5,654 00	31,499 95
December.....	6,764 00	19,135 00	5,745 50	31,644 50
Total.....	$81,365 80	$226,205 83	$68,580 10	$376,151 73

Since the last report, a contract has been made with Alexander Brandon, dated Nov. 26th, for furnishing one thousand gas lamps, at one dollar and ninety-nine cents each, of which one hundred have been delivered.

Also, a contract with Hugo V. Ungelter, dated Dec. 14th, for one thousand cast-iron lamp posts, at one and seventy-three hundredths of a cent per pound, of which three hundred and fifty have been delivered.

Also, a contract with Hugo V. Ungelter, dated December 14th, for one thousand lamp irons, and drilling and tapping the cross-heads for the same, at seventy-seven cents each, none of which have as yet been delivered.

As stated in the report of September 30th, the present contract for repairing and reglazing the public lamps will expire on the second day of January, 1861, and as the opening of the bids advertised for the 27th Dec. has been postponed, owing to business engagments of the Comptroller, it will be highly important that some arrangement should be made without unnecessary delay, by which the repairing of the lamps may be continued during the Winter, or until the new contract shall be confirmed by the Common Council. The cost thereof will amount to over four hundred dollars per month; and the Superintendent recommends that a resolution be passed by a three-fourths vote of the members elected to both Boards of the Common Council, directing the Street

Commissioner to cause the repairing of the public lamps to be continued until a new contract shall be confirmed.

MAINS LAID BY THE MANHATTAN GAS-LIGHT COMPANY.

Number of miles of mains laid during the year is ten.

Total number of miles of mains laid to Dec. 31st, is two hundred and twenty-eight.

MAINS LAID BY THE HARLEM GAS-LIGHT COMPANY.

Number of miles of mains laid during the year is two and three-fourths. Total number of miles of mains laid to Dec 31, is forty.

Number of lamp-posts in	New York Company's district	3,150
" "	Manhattan " "	9,132
" "	Harlem " "	2,360
Total		14,642

STATEMENT OF EXPENDITURES ON ACCOUNT OF THE APPROPRIATION FOR LAMPS AND GAS FOR THE YEAR 1860.

Amount unexpended December 31, 1859, as per Statement of the Comptroller	77,507 85	
Amount of New appropriation	424,000 00	
Total appropriation		501,507 85
Amount expended 1st quarter	75,640 67	
" " 2d "	105,956 42	
" " 3d "	106,811 68	
" " 4th "	142,946 22	
Total expended December 31, 1860		431,354 99
Balance unexpended		$70,152 86

GAS LAMPS FOR CHURCHES.

Mr. Gayte proceeds to say:

"I would respectfully call the attention of the Common Council to the gas lamps frequently ordered to be fitted up in front of church edifices. Resolutions are often passed directing two lamps to be placed in front of a church, when at the same time there will be one, and sometimes two, already there, or within a few feet thereof; there are therefore now a number of churches with four public lamps in front; and even then the congregation appear not to be satisfied, for we find them petitioning the Common Council to place two lamps in front of the chapel in the rear of the church, and which petition is generally granted.

"As there are about three hundred churches in the city, the cost of lighting two only, in front of each, will amount to over fifteen thousand dollars per annum, exclusive of the cost of the lamp post, lantern, and repairs, and the expense is yearly increasing. I cannot see the necessity of having so many lamps, or of having them lighted every night, while not one-half of the churches hold divine service even one night in a week. And I would, therefore, suggest that some action might be taken by which the expense of lighting the above lamps may be lessened; and I would also recommend that parties applying for church lamps should be referred to this office, and then, if there should be one or two lamps in front of the church, or within a few feet thereof, the same could be taken up and reset.

"In my report of March 31st, I stated that much difficulty was had in having the streets in the lower part of the city properly lighted, from the facts of sidewalks being taken up for the construction of vaults, and when relaid, the same being done with granite blocks or iron plates, thus making it almost impossible for the lamp-post to be reset, and I therein recommended, in order to obviate the difficulty, that a suitable ordinance be passed by the Common Council, making it obligatory on all persons constructing vaults or sidewalks as above, to make provision for the lamp-posts to be reset where required.

"Finding the evil complained of continually increasing, and no action having been taken by the Common Council upon my former recommendation, I caused the following ordinance to be introduced in the Board of Aldermen, on the 19th of November last, viz.:

AN ORDINANCE FOR THE PRESERVATION OF THE PUBLIC LAMPS.

"*The Mayor, Aldermen, and Commonalty of the City of New York, in Common Council convened, do ordain as follows:*

"SECTION ONE. Any person breaking or mutilating any of the public lamps, shall be liable to a penalty of five dollars for each offense.

"SECTION TWO. No person, without permission of the Superintendent of Lamps and Gas, shall take up, remove, or carry away any public lamp-post in the city of New York, under the penalty of ten dollars for each offense.

"SECTION THREE. No person shall remove, or cause or permit to be removed, any public lamp-post in the city of New York, for the purpose of constructing a vault or otherwise, without the permission of the Superintendent of Lamps and Gas; and the owner or owners of such vaults shall cause the lamp-post so removed to be reset immediately upon the completion of the vault, under the penalty of twenty-five dollars for each offense.

"SECTION FOUR. This ordinance shall take effect immediately.

"The above ordinance was referred to the Committee on Lamps and Gas, but no report has been made thereon. I earnestly hope, however, that the same may be passed without unnecessary delay.

TRANSPARENT STREET SIGNS IN THE PUBLIC LAMPS.

"Much annoyance has also been had from the frequent complaints of the glass street-signs in the public lamps being misplaced or broken. On the 19th November, 1859, I addressed a note to the officers of the three Gas Companies, calling their attention to the matter, and urging upon them the propriety of adopting some measure by which the evil complained of might be avoided; and in compliance with my request, the Superintendents of the Gas Companies issued stringent orders to their lamplighters to use great care in having the signs retained in the lamps in a proper manner, and for a short time the complaints had almost ceased; but I regret to see, within the past few weeks, the signs in many instances again misplaced, and thereby rendered useless.

"As these signs are a great convenience, if properly taken care of, and entirely useles when placed wrong, I would join in the recommendation made by the Superintendent of Street Improvements, in his report of July 2d, that a suitable ordinance be passed, fixing a penalty on all persons, whether lamplighters or others, displacing or otherwise injuring the said street signs. If such an ordinance should be passed, I have no doubt but that the evil complained of would almost entirely cease, and the said signs would thereby be acknowledged one of the best improvements of the age.

"All of which is respectfully submitted.

"WILLIAM GAYTE.
Superintendent Lamps and Gas."

OFFICIAL.

TIME TABLE FOR LIGHTING AND EXTINGUISHING THE GAS LAMPS FOR THE YEAR 1861.

Months.	Date.	Begin to Light.	Begin to Extinguish.	Months.	Date.	Begin to Light.	Begin to Extinguish.
		H. M.	H. M.			H. M.	H. M.
January	1	4 45	6 20	July	2	7 45	3 15
"	8	5 00	6 20	"	9	7 45	3 15
"	15	5 00	6 30	"	16	7 40	3 15
"	22	5 15	6 15	"	23	7 40	3 15
"	29	5 15	6 15	"	30	7 25	3 30
Feb.	5	5 30	6 00	August	6	7 25	3 40
"	12	5 40	5 45	"	13	7 10	3 50
"	19	5 45	5 45	"	20	7 10	3 50
"	25	6 00	5 30	"	27	6 45	4 15
March	5	6 00	5 30	Sept.	3	6 30	4 15
"	12	6 15	5 15	"	10	6 20	4 30
"	19	6 15	5 00	"	17	6 15	4 30
"	26	6 30	5 00	"	24	6 00	4 45
April	2	6 30	4 45	October	1	5 45	4 45
"	9	6 40	4 20	"	8	5 40	5 00
"	16	6 45	4 15	"	15	5 30	5 00
"	23	7 00	4 00	"	22	5 15	5 15
"	30	7 00	4 00	"	29	5 00	5 15
May	7	7 15	3 30	Nov.	5	5 00	5 30
"	14	7 20	3 30	"	12	4 45	5 45
"	21	7 30	3 15	"	19	4 40	5 45
"	28	7 30	3 15	"	26	4 35	6 00
June	4	7 40	3 15	Dec.	3	4 35	6 00
"	11	7 40	3 15	"	10	4 35	6 00
"	18	7 45	3 15	"	17	4 35	6 00
"	25	7 45	3 15	"	24	4 40	6 15
				"	31	4 40	6 20

STREET DEPARTMENT,
BUREAU OF LAMPS AND GAS,
NEW YORK, December 15th, 1860

CHARLES ROOME, Esq., *President Manhattan Gas-Light Co.:*

SIR—The above Table will show the Time for Lighting and for Extinguishing the Public Lamps during the year 1861. All the Lamps to be lighted within one hour from the time of beginning. You will please be governed accordingly.

WILLIAM GAYTE,
Superintendent of Lamps and Gas.

FREDERICKSBURG, VA.—Coal-gas works, Dungan, Cartwright & Co., builders; quite satisfactory. Use iron retorts—no clay; Code, Hopper & Gratz' meters and one gas-holder of 40,000 cubic feet capacity, built by Geo. W. Kraft: no exhauster nor photometer, (all wrong); about 3 miles of gas mains, from 3 to 6 inches diameter, Fry Richmond, Va., coal, at 16 cents per bushel.

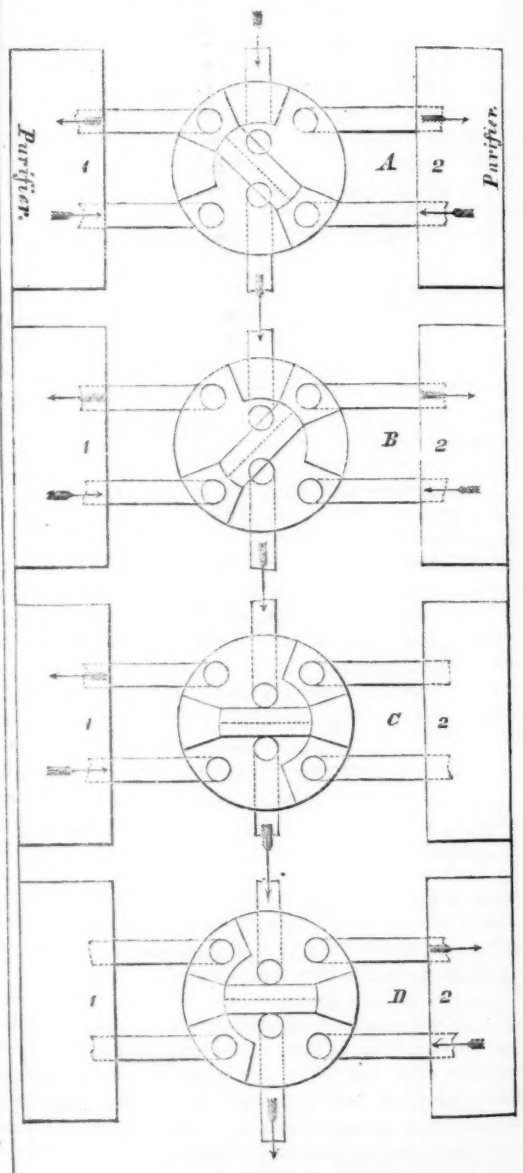
LAMBERTVILLE, N. J.—Gas-works built by L. R. Titus, of Trenton, N. J., with his own iron retorts, Code, Hopper & Gratz's meters—wet and dry; Titus' gas-holder; Westmoreland coal, at $7 per 2,240 lb.

SABBATON'S HYDRAULIC VALVE.

To the Editor of the AMERICAN GAS-LIGHT JOURNAL:

Having noticed in your issue of Nov. 15, page 155, an article translated from the *Journal de l'Eclairage au Gaz*, in which a plan is proposed for "*placing two purifiers so as to be able to change the course of the gas, and arrest its passage into either box at will,*" and believing the method suggested unnecessarily expensive and complicated, I beg leave to submit for the benefit of such of your readers as may wish to use but two boxes, in small works, an arrangement which I devised some years since.

I have used this plan successfully in many small works and it accomplishes all that is required in a very simple and economical manner. The annexed diagram will explain the arrangement, which consists of a hydraulic valve covering six upright pipes; an inlet and outlet to each box; and the inlet and outlet pipes to the *valve*—which is about three feet in diameter—and can be placed in any part of the purifying room.



The valve being placed over the pipes as indicated in the diagram A, the gas will pass through both boxes; passing through *No. 2 first;* by turning it to B, it still passes through both boxes, but through *No. 1 first;* at C, it passes through *No. 1 only*, No. 2 being shut off; at D, the gas passes through *No. 2 only*, No. 1 being shut off.

Although the arrangement suggested in the *Journal de l'Eclairage au Gaz* appears calculated to accomplish the object of controlling the motion of the gas, yet the expense occasioned by the use of eight slide valves, and the quantity of pipe required, would prevent its being generally adopted. Moreover, where there are so many valves, mistakes are apt to occur in opening and closing them.

FREDK. A. SABBATON.

Albany, N. Y., Feb. 11, 1861.

WASHINGTON GAS LIGHT CO., D. C.—At a meeting of the stockholders of this company, on Monday January 7th, Messrs. G. W. Riggs, W. G. Freeman, and Fitzhugh Coyle, of this city, and Messrs. Gore, and Rogers, of Philadelphia, were chosen directors for 1861.

ANSWERS TO CORRESPONDENTS.

H. B. of N. Y.—*According to Clegg, the results of the distillation of one ton of Boghead cannel coal, at a low heat, were* 11,632 *feet of gas,* 715 *lbs. of coke, and* 720 *lbs. of tar.*

L. S. of Ky.—*You must be mistaken. The apparatus you refer to is not adopted to the work you wish to perform. If any other ideas in connection with the subject suggest themselves to you, let us know, and we will render you all the assistance in our power.*

G. S. of Conn.—*It is barely possible.*

J. D. of Mo —*Both terms are correct, but we prefer "gasholder," as that name designates the use of the apparatus; whereas "gasometer" rather implies a measuring instrument. Most of the scientific writers on gas have adopted the former term, and it is generally used by practical men.*

B. H. D. of Md.—*Lord Redesdale's "Sale of Gas Act" will give you the desired information. You will find it in the Supplement to the* American Gas Light Journal *for Feb.* 1, 1860.

O. S. of Cal.—*The illuminating power of a candle is greatest as soon after the lighting of the wick as the fat begins to melt and flow freely; and previous to the crusting of the wick. As soon as the latter condition commences, the intensity of the light decreases.*

C. I. M. of Pa.—*The vessel for holding mercury in analyses of gas, should be constructed of dense pear wood, with two sides of thick plate glass; the ends should also be of pear wood. The bottom and ends of the trough should be well rubbed with sublimate solution and mercury before use, to ensure the adhesion of the metal. You can procure the whole apparatus at the philosophical instrument stores in this city.*

J. H. C. of Ill.—*The third edition of Peckston's Practical Treatise on Gas-Lighting was published in London, in* 1841. *It was an excellent work for its day, but now would be considered rather behind the times. Still no gas-engineer's library could be considered complete without it. If you want the very best work on the subject, by all means obtain a copy of Clegg, which you will find a most valuable fund of information, and you will not regret having made the purchase.*

E. J. of Pa.—*Our advertising columns will inform you of all the prominent makers of the article.*

C. B. S. of Del.—*It is very unsafe to burn Hydrogen gas that has been kept several days in an india-rubber bag, as it is so subtle in its nature as to permeate the structure of the rubber—the portion passing out through the pores, being replaced by atmospheric air, thus forming an explosive mixture. It is much better to make only so much as you actually need for each experiment, and to make a fresh supply whenever required.*

O. W. B. of Md.—*In subjecting wood or peat to destructive distillation, a number of substances are condensed, among which is pyroligneous acid, also called wood-vinegar. It is an impure acetic acid, and is employed to a great extent in making "iron-liquor" (acetate of iron), "red liquor" (acetate and sulphate of alumina) and various other acetates, which are extensively used as mordants in dyeing and calico printing. Pyroligneous acid has a nauseous, acid, burning taste, and a strong empyreumatic odor.*

SUPPLY OF GAS BY METER TO PUBLIC LAMPS.

Gas meter manufacturers and others will note with interest the following communication to the London *Journal of Gas-Lighting:*

Sir,—This company supply gas to the public lamps by meter. There are six,—two wet ones and four dry ones—placed at the foot of six lamp-posts, the average of which is taken for all the lamps, provided that the meters register accurately. Lately two of the dry meters have registered 10 per cent. slow; one has registered 6½ slow, and one 1½ fast. On this account the company have not taken the average from them; only from the wet ones which have been correct. The Local Board of Health refuse to pay the bill unless the average is taken from all. Can we compel them to pay it? If so, why and how? We have made no arrangement respecting the inaccuracy of the meters, therefore, they say we are compelled to abide by them. They say in *all* cases we are obliged to charge according to the registration of the meter. Before taking legal proceedings we ask your advice.

John Morton, Manager.

Gas-Works, Aughton street, Ormskirk, Jan 9, 1861.

[The index of a meter is *prima facie* evidence of the quantity of gas consumed; and to substantiate a claim for a larger quantity, we apprehend proof must be given, not only that the three dry meters in question, in their present state, register less than the quantity consumed, but that they have done so throughout the whole period during which the charge accrued. If, however, upon examining their registration for corresponding periods of previous years, and comparing them with the registration of the wet meters during the same periods, it should appear that the registered consumption of gas through the dry meters has fallen off, a claim for a reasonable addition may be sustained.—Ed. J. G. L.]

CORRESPONDENCE.

LIGHT AND WATER IN HAWAII.

United States Consulate at Hilo, Is. of Hawaii, December 12, 1860.

To the Editor of the American Gas-Light Journal:

Your letter of August 1st has been received through the Government Despatches.

In reply to your several inquiries, I have to state that no gas is employed for the purpose of illumination at this place, nor is it probable that it will be introduced until the foreign population shall be much greater than at present. We have a scattering population of 1500 or 2000, nine-tenths of which are natives.

The illuminating material in use is sperm candles, sperm and whale oils. Price of candles 50c. per pound. Sperm oil $1 to $1.25. Whale oil, 50c. per gallon.

We have no water-works, but abundance of water, afforded by numerous streams which descend from the mountains and are led in various directions through the town.

I am, very respectfully, your obedient servant,

Thomas Miller.

WATER-WORKS AT MEDIA, PA.

To the Editor of the American Gas-Light Journal:

Upon my arrival home after visiting your Rooms, I was handed the enclosed memorandum by our town clerk. The accumulation of business during my two weeks' absence has prevented my answering your interrogations before this. Allow me to suggest that you extend your inquiries still further. For instance:

1. Is your stream of sufficient weight to supply without using power?

2. What is the character of your machinery and its capacity?

3. What is the length of the mains in use, the kinds and sizes?

4. How many hours per day do you work your machinery?

5. What kind of reservoir have you?

To the first interrogation, in our case my answer would be, No. To the second would be, Hydraulic ram and steam pumps. The ram was put up in 1854; its weight is 1,500 lbs., working under 26 feet fall, with a driving pipe 6 inches in diameter and 275 feet long; elevation to overcome, 182 feet. When the stream furnishes 250 gallons per minute we estimate the delivery at basin at 25 gallons per minute or 36,000 gallons in twenty-four hours, which is more than we require. In midsummer, however, our streams fail to furnish the required amount; so in the Spring of the present year we put up a steam pump of H. R. Worthington's make, of your city, with a 16 inch steam cylinder, and 7 inch water-plunger, with 9 inch stroke, which we use only when the streams are low, as above. The steam pump is capable of throwing up the whole stream. We work the pumps when necessary, to give us ample supply. We have 12,000 feet of street mains, cast iron, 9 feet lengths, from 8 to 3 inches diameter. Our reservoir is constructed of stone and brick of a cylindrical form, stone wall 18 inches against the bank; lime mortar, lined with one course of brick 4½ inches laid in cement. The foregoing hurriedly written remarks embrace all that will interest you.

Yours respectfully,

R. Buckley, *Supt. Water-Works.*

Halifax, N. S.—Coal-gas works, and are satisfactory; name of builders not given. Clay retorts, from Fraser, Inverkeithing, Scotland; station meters from Milne & Son, Edinburg; wet-meters from Cochrane & Co., and Grant & Co., Edinburg; 3 gas-holders, two 40x16, Liddle, of Glasgow; and one 60 x 20, from Hanna, Donald & Wilson, of Paisley, Scotland. Total length of mains, about 30 miles, from 1½ to 30 inches diameter. Lesmahago coal is used in equal parts with Pictou. The former costs $10.50, the latter, $4 per large ton. Made about 12,000,000 cubic feet of gas last year. Gas cleaned by sulphate of iron converted into oxide, and water. The manager is Mr. George Buist.

Frederick, Md.—Rosin-gas works; about being changed to coal. Retorts from Case & Co., Trenton, N. J. Meters from Code, Hopper & Gratz; length of mains 3 miles, from 2 to 8 inches. Cumberland gas-coal, costs them $6.25 per ton. These works are owned by Charles E. Trail, J. M. Kunkel and W. T. Brown.

Hudson, N. Y.—A petition, signed by a number of gas consumers *and by some non-consumers*, for a reduction in the price of gas, having been presented to this company, the following straightforward, business-like answer was returned by the directors:

To Messrs. A. Bogardus, House & Wattles, Wm. H. Seymour and others:

Gentlemen:—The Hudson Gas Company have received a petition signed by you and numerous other consumers and several non-consumers of gas in this city, praying for a reduction in the price from $4 to $3 per thousand feet. We presume that we are indebted for this distinction over the other merchants in this city to some misapprehension of our position. Had you petitioned the bakers, the grocers, the hatters, the clothiers and the shoe dealers, for a specific reduction in their prices, we should have felt the proceeding to be impartial. Why are we thus distinguished? We neither claim nor enjoy any special privileges. We manufacture and sell a burning fluid. We deliver it at every consumer's door. It is true that we have the privilege of delivering by channels underground, while you have the use of the streets for the same purpose. There are various other burning fluids in the market, and we have no monopoly. We ask no one to buy our wares—we deliver only upon request. We labor under disadvantages in our trade that you are free from. We cannot supply any consumer without a special outlay for pipe and meter of $14 to $20, and we do this knowing that the applicant may at any time subject us to a loss of this outlay by using other material for light. This is no uncommon event, and we have several services rotting in the ground where the consumption has been discontinued. We are a corporation, but this fact confers no privilege whatever, beyond the use of a corporate name, instead of the names of all the stockholders. We are simply copartners in trade, and differ in no other respect from other business firms, except in the disadvantages under which we labor.

We wish to say, however, that we do not complain of the partiality manifested by this petition. On the contrary, we are gratified by this opportunity of giving explanations of our position to all our citizens. It will be recollected by nearly all the petitioners, that in 1852 there was a strong desire on the part of the people to have gas works erected in our city. We proposed to erect such works, and the Common Council representing all the people, and in behalf of the people, proposed to give us the privilege of laying pipe through the streets, if we would make the streets whole again, and moreover furnish the people light for their streets and public buildings at $2 50 per thousand; would furnish 20 lamp-posts for street lamps; would supply meters and 20 feet of service pipe without charge to the consumer; and should charge only $4 per thousand to the private consumer.

We accepted these terms freely, we admit, and only learned afterwards that the conditions were more severe than had been assented to by any other gas company in the United States. This contract was concluded, was entered on the minutes of the Council; was drawn out in legal form, and executed by the people of the city and by the gas company.

Was this a bargain for only one side? Are you to reap the benefit for our sacrifice for years, and then repeal the compact? This contract on our part has been faithfully executed. We have supplied the street lights at a steady loss from the beginning. And more than this—to avoid complaint, we have supplied and are now supplying about 50 consumers, whose bills have never paid the cost of such supply, and yet the names of most of these persons appear on your petition.

But we do not intend to rely on our contract for our justification in the answer we make to your petition. We have always endeavored to conciliate and to gratify every reasonable enquiry, and we wish to do so now. While we believe that every party has the right to fix his own price on what he has to sell, we believe also that no party is justifiable in charging an unreasonable price for articles in general demand. We therefore justify our present charge, independent of our contract, by the following facts:

All experience in gas making in this country has resulted in this conclusion; that where the price of gas coal is from $7 to $10 per ton, no gas company can afford to reduce the general price per 1000 feet below $4, until their paying supply has amounted to the average of 60,000 feet per diem! And this, for the reason, that until we reach that point, we cannot avail ourselves of any of the economies and facilities employed in the large works. For illustration, in our works, we make an average of 8,500 feet per day, through the year. The same help fully employed would make 30,000 feet, the same fuel would make 25,000 feet, the same retorts would make 25,000 feet. If we had a demand sufficent to give full employment to *five* men, we could avail ourselves of the great benefits of an exhauster, of single scoop charging, and other saving facilities which larger works employ.

Our citizens, if they will, can satisfy themselves of these facts, and if they will reflect upon them, we think they will not become excited by the increase of bills, occasioned by the darkest stormy month we have ever had since the supply of gas commenced. It may be said to our praise, that the Hudsonians are a very prudent people. The gas consumption of Newburgh and Poughkeepsie is more than double in each city, that of Hudson. We consume all we need, and the people of those cities do the same at the same price per thousand feet. The consumption in either of those, as we are informed, does not pay over 8 per cent. on the capital invested, and this

is liable to be reduced, by any new extension of pipes, and to be wholly cut off by the giving out of the first supply of meters and services.

No reduction of price could or would create an equivalent increase of consumption. In this city the present consumers use all that their business or comfort require. About fifty of these are supplied at a small loss, and 42 others are supplied at a profit barely sufficient to cover the loss on the former. We cannot, without great offense remove the meters from such consumers, and we cannot increase the price of gas above the stipulated $4, without infringing upon our contract. Hitherto our profits have all been divided to our stockholders, and no fund reserved for renewals or contingencies. These dividends have averaged less than 7 per cent. per annum, since we invested our money. Any reduction of price must make our profits still less! A reduction such as you request would stop our works; and this no reasonable man would ask us to do. We desire to do all we can to oblige and satisfy. In making this statement, we depart from all the ordinary rights of business men, simply to avoid being misjudged. Our answer, we think, will satisfy every reasonable man, that we cannot afford to comply with your request, or to make any reduction at present from our contract price.

Very respectfully yours, on behalf of the directors,

J. W. FAIRFIELD, Supt.

PATENTS.

Inventors are informed that Patents are procured at the Rooms of the AMERICAN GAS-LIGHT JOURNAL, through F. C. TREADWELL, Jr., Esq., an experienced Patent Agent and Expert, in the United States, and in all other countries where Patent Laws are in force.

UNITED STATES.

146.—L. A. Boisson, of Lyons, France, for an improvement in Ovens for Baking Fire Bricks:

I claim the arrangement of the furnace or furnaces, B B, heating flues C C, and escape flues, D D, with respect to each other, and the arched chamber, A, whereby the heat is first conducted beneath the hearth of the oven, and thence through the oven, all substantially as described.

148.—G. F. J. Colburn, of Newark, N. J., for an improved Evaporator for Hot Air Pipes:

I claim, first, The arrangement of the reflector, C, in combination with the evaporating vessel, A, and hot air pipe, B, as described, for the purpose of facilitating the evaporation, and to prevent the dust rising into the apartment.

Second, Constructing the vessel, A, of two parts, a and b, the part, a, to be made of porous material, and the part, b, to contain a lamp wick or its equivalent, substantially as and for the purpose set forth.

156.—O. C Evans, of New York City, for an Improvement in Lamps:

I claim, first, The combination and arrangement of the gas chamber, A constructed with horns, t t, and slitted openings, as described, with the openings of the wick tube, a1 a2 a3, &c.

Second, In combination with the gas chamber and openings in the wick tube of the guards, c c, and petticoat cone, D, the same being arranged in the manner and for the purposes set forth.

164.—C. L. Herring, of St. Louis, Mo., for an Improvement in Gas Regulators:

I claim the application of the curved plates, a a, to the flexible diaphragm, C, substantially as described, for the purpose specified.

175.—C. B. Loveless, of Tom's River, N. J., for an Improvement in Vapor Lamps:

I claim the combination with the wick tube, T, of the crescent-shaped gas-chamber, C, having the burner, B, and the elongated heat conducting rings, R, performing the double function of generating gas and aiding in the lateral spreading of the flame; the whole being constructed and operating substantially in the manner and for the purpose set forth.

202.—Albert Bellingrath (assignor to himself and Leonard Bellingrath, Jr.), of Atlanta, Ga., for an Improvement in Pumps:

I claim the construction and arrangement of the piston, B, cylinder, A, wedge, D, in the manner and for the purposes set forth.

213.—G. W. Armstrong, of Clinton, N. C., for an Improvement in Water Wheels:

I claim, first, The employment of a vertical shaft, E, which has on its lower portion an enlargement, I J, of the form described, in combination with a centrifugal discharging reaction water-wheel, G, and a cylindrical casing, B, in the manner and for the purposes set forth.

Second, The employment of a suspended elastic packing ring, K, in combination with the water wheel, G G', which is supported on a vertical shaft, E I J, enlarged as above stated, and is raised and lowered in the manner and for the purposes set forth.

235.—Joel Harris, of New Carlisle, Ind., for an Improvement in Water Wheels:

I claim the combination of a compound vertical gate, D, with the water wheel, J, and deflecting plates or water guides, b, the whole being constructed, arranged and operating in the manner and for the purpose specified.

243.—Henry Lanergan, of East Cambridge, Mass., for an Improved Deck Light:

I claim the improved manufacture of glass deck light, as constructed with the several parts, a b c d, thereof, arranged together substantially in the manner and so as to operate together, and for the purpose as specified.

247.—F. A. Marshall, of Marlborough, Mass., for an Improved Lamp or Candle Stand:

I claim the improved lamp or candle stand, as constructed with the strut, B, and the spring hook, C, arranged and applied to it substantially as and for the purpose specified.

250.—C. L. Morehouse, of Jackson, Tenn., for an Improved Composition for Lubricating Journals, Axles, &c.:

I claim the lubricating composition described, compounded of the materials in the proportions and manner specified.

252.—A. J. Meyer, of Buffalo, N. Y., for an Improved System of Signalizing:

I claim the combination of motion with a signal or signals (either day or night signals) for out-of-door or field use, as applied to a complete system of field signalling, in which all letters or figures, or combination of letters or figures, are indicated by distinct motions or combinations of motions, each motion or combination having a separate and understood value, substantially as set forth.

267.—Emil Trittin, of Philadelphia, Pa., for an Improvement in Lamps:

I claim the combination of the flange or projection, O, the diaphragm, L L, the air chambers, F and G, the wire gauze guards, H, and H', the wire gage guard, I, the cover, E, and the tube, S, in the manner and for the purpose substantially as described.

269.—Maurice Wesolowski, of New York City, for an Improved Apparatus for Obtaining Light by Frictional Electricity:

I claim the application and use of bisulphuret of carbon, or any other equally inflammable liquid, capable of being decomposed and ignited by an electric spark, and contained in an insulated vessel, in combination with a frictional electric machine, the whole being arranged in the manner and for the purpose described.

275.—William Burnett, of Boston, Mass., assignor to Robert Burnett, of New York City, for an Improved Steam Pressure Gage:

I claim obtaining an increased or enlarged first motion in pressure gages or indicators through the agency of a bar or arm securely and rigidly affixed to the elastic medium upon which the pressure acts, at a point removed from its center or point of greatest direct motion, and in such a position that a lateral motion of the free end of said bar or arm is induced and employed, through suitable mechanism, to indicate the pressure, substantially in the manner and for the purpose herein specified.

278.—Levi Short (assignor to himself and C. S. Pierce), of Bufialo, N. Y., for an Improvement in Vapor Lamps:

I claim the heaters, h', formed on the roof of the burner, so that the jet of gas shall be between them, thereby securing the blue portion of the flame for heating, and the white portion thereof for light, substantially as set forth.

THE WATER WORKS OF PHILADELPHIA.—The following table, exhibiting the work done at each of the water works in Philadelphia during 1860 as compared with 1859, will give an idea of the increased demand for water, owing to the large number of new houses erected in that city during the past year.

Works.	1860. No. of gals. Pumped.	1859. No. of gals. Pumped.	Inc. in 1860.
Fairmount,	3,612,989,017	3,390,271,757	222,717,260
Schuylkill,	2,696,960,210	2,643,736,620	53,223,590
Delaware,	872,144,980	868,567,100	3,577,880
24th Ward,	283,646,070	265,456,170	18,189,900
	7,465,740,277	7,168,031,647	297,708,630

The daily average pumped by all the works was 20,382,066, and in 1859, 19,638,442.

The following is the number of gallons pumped each month in the year, as compared with 1859:

	1860.	1859.
January	512,592,615	429,751,712
February	441,404,760	388,423,311
March	645,845,495	439,089,370
April	614,196,130	455,104,936
May	595,425,955	578,217,245
June	681,758,885	671,008,680
July	842,136,165	763,896,860
August	798,921,282	795,255,270
September	724,372,495	680,295,870
October	673,397,600	777,929,910
November	558,081,620	685,167,750
December	477,608,275	603,890,730

In 1859 the largest amount of water pumped in any one month was in August, but in 1860, July exceeded all the other months by far. The falling off in the quantity of water pumped in November and December last, as compared with the same months in 1859, is no doubt owing to the present political and financial troubles, by which a number of factories, mills, &c., have been closed.

COAL IN UTAH.—According to the Salt Lake correspondent of the New-York *Times*, there is no doubt that coal exists in large quantites in the great basin of Utah. On the Weber River a tributary of Great Salt Lake, from the western slope of the Wahsatch range, coal is now regularly mined, and selling at the pits for $5 per ton, though the price in Salt Lake City is $25, on account of the expense of transportation. Should this coal prove to be of good quality, one great obstacle in the way of a Pacific Railroad will be removed—viz: a scarcity of fuel for locomotives. Wood is extremely scarce on the plains this side of the Rocky Mountains, while in the great basin there is even less.

KEOKUK, IOWA.—Kilbourn & Herrick built these gas-works. The clay retorts are of Messrs. Elliman's importation, the iron from Ashcraft, of Cincinnati, O. Jones & Lennig's station and customer meters; Stacey's gasholder. Use neither photometer nor exhauster. (They should use both.) Some 5 miles of mains laid. Mix Iowa and Pittsburg coal at 33½ and 12½ cents per bushel. Bonded indebtedness, $61,000, at 10 per cent. per annum.

BUSINESS OF THE MANHATTAN GAS LIGHT COMPANY FOR 1860.—Quantity of gas made, 936,615,000 c.f.

Coal carbonized, Tons, 96,050. 8. 3. 28.

Greatest quantity of gas made, Nov. 15. 3,917,000 c f.

do. do. sent out " 17. 4,133,000 "

Retorts in action 932; of which 3 5ths are clay.

Public lamps in use, 9,132.

Increase in business over 1859. 12 7-10ths per ct.

Extent of mains laid, 228 miles, from 3 to 20in. diameter.

Average illuminating power of gas, 15 candles.

Average yield of gas, 9.750 c.f. to ton of coal.

Things Ancient, Quaint and Rare.

THE BREWERS' COMPANY OF LONDON.

In 1420, their books mention in decided terms the eſtabliſhment in that Company of what may be conſidered a Court of Aſſistants, though not ſo named, and ſpecify its duties. The entry which records the occurrence, ſtates a "reſolution made by Thomas Greene, maſter, and the three wardens, 'and others,' that they and their ſucceſſors ſhould meet at 'Brewereſhalle,' there to hold their communication, on what neceſſities of the ſame craft were to be enquired of, ſought into, and executed by them, as they ſhould ſee moſt expedient for its honor and proſperity." Their meetings were to be held every Monday, except when changed to other days on account of feſtivals. The Company's affairs had evidently been conducted previouſly by general aſſemblies of the Companies with the maſters; for the year before (1419) the clerk is ſaid to have been elected by the maſter and wardens, "with the counſell and unanimous conſent of the brewers' craft."

Their very ancient and curious records, under date of 1421, contain a long and remarkable ſtory of the perverſeness of one William Payne, at the ſign of *The Swan*, by St. Anthony's Hoſpital, Thread-needle-ſtreet, which originated in his refuſal to contribute a barrel of *ale*, to be ſent to the king (Henry V.) whilſt he was in France. "For this affair he was fined 3*s.* 4*d.* for a *swan* for the maſter's breakfaſt; and refuſing to pay, was imprisoned; afterwards contemptuouſly reſolving not to wear the Company's livery," he was brought before the mayor, and eventually conformed; but, it is added, "was very long before he could be humbled and brought to good behaviour." Another story, in which a *swan* was alſo the fine, occurs ſoon after, in the ſame books. It details the ill treatment of Simon Potkin, of the *Key*, at Aldgate, who had paid 20*d.* to a friend to procure a certificate of the "oppreſſive acts," as they are ſtyled, of the famous Sir Richard Whittington, then Lord Mayor, who appears to have been particularly ſevere with the retailers of ale; this Potkin, on being fined by the chamberlain for bad meaſure, excuſed himſelf by ſaying that, "he had given money to the maſters [of the Brewers' Company], that he might ſell at his own will." For this ſlander he is ſtated to have got into great trouble with his company, and to have been only finally pardoned, on paying 3*s.* 4*d.* for a *swan*, to be eaten by the maſters; but, out of which, it is added, "he was allowed his own ſhare."

The records of the Company, in 1422, contain a curious entry of an information againſt them for ſelling dear ale; the complainant in the caſe being no less a perſonage than the renowned Sir Richard Whittington. The ſubſtance of it, tranſlated from the original in Norman French, follows:

"On Thurſday, July 30th, 1422, Robert Chichele, the mayor, ſent for the maſters and twelve of the moſt worthy of our Company to appear at the Guildhall; to whom John Fray, the recorder, objected a breach of government, for which £20 ſhould be forfeited for ſelling *dear ale*. After much diſpute about the price and quality of malt, wherein "Whytyngton," the late mayor, declared "that the brewers had ridden into the country and foreſtalled the malt, to raiſe its price," they were convicted in the penalty of £20; which, objecting to, the maſters were ordered to be kept in priſon in the chamberlain's company, until they ſhould pay it, or find ſecurity for payment thereof."

Whittington having obtained his conviction, and the Mayor and Court of Aldermen "gone homeward to their meat," the masters (who, the record proceeds to ſtate, remained in cuſtody,) "aſked the chamberlain and clerk what they ſhould do? who bade them go home, and promiſed that no harm ſhould come to them; for all this proceeding had been done but to pleaſe Richard Whityngton, for he was the cauſe of all the foreſaid judgment."

In proof of his "extraordinary and arbitrary proceedings againſt the Brewers' Company," the records contain an account of "the offence taken by Richard Whityngton, mayor," againſt them for their having had "fat ſwans (cignos pinguis) at their feaſt on the morrow of St, Martin."

MEDALS AWARDED TO THOMAS GLOVER'S PATENT DRY GAS-METERS.

MANUFACTORIES

SUFFOLK ST. CLERKENWELL GREEN. & ALLEN ST. GOSWELL ST. LONDON

BOSTON, Mass., 1 Barrett Street,—August 2, 1860.

RICHARD GLOVER begs to inform Gas Companies, and Contractors, that he has always on hand a large assortment of Thomas Glover's (of London) celebrated Dry Gas Meters.

Thomas Glover's Meters have now been in use in the United States and British Provinces, for the last Fourteen Years, and are extensively used by many Gas Companies, to their entire satisfaction; and R. Glover can with all confidence, refer to them in proof that Thomas Glover's Meters are—the most Perfect in Principle—the most Correct in Registration—and more Durable than any other Dry Gas Meter made in the United States or Great Britain. R. Glover will at all times be glad to repair any Gas Meters sent him at the above factory. If any of them are of Thomas Glover's manufacture, and of a more recent date than Three years, he will make no charge.

DOWN & MERRIFIELD,

Nos. 340, 342, 344 and 346 West Twenty-second Street, North River, NEW YORK CITY,

MANUFACTURERS OF

WET AND DRY PATENT GAS-METERS,

Pressure-Registers, Pressure-Indicators and Gauges, Station, Show, Customer, and Experimental Gas-Meters, Centre or Hydraulic Valves, Governors, Compensators for Exhausters, and the Standard Testing Gas-Holders* for Proving Meters, now used in the State of New York in compliance with an Act of the Legislature. Also, Bunsen's Photometer, with complete Apparatus for working the same.

*The standard of measurement of this Gas-Holder is given by Professors Torrey, of the U. S. Assay Office; Joy, of Columbia College; Gibbs, of the Free Academy and several other distinguished scientific gentlemen.

JOHN J. GRIFFIN & CO.,

No. 7 BEEKMAN Street, and 76 West 37th Street,

NEW YORK CITY,

MANUFACTURERS OF WET AND DRY GAS-METERS,

Station-Meters, Proving-Machines, Show-Meters, Test-Meters, Pressure Indicators, &c.

All of our Work is Guaranteed to be of the First Quality, as well as the material, and for this we can refer to numerous Gas-Light Companies.

JOSEPH LENNIG & CO.,

Nos. 313 & 315 NEW MARKET-St., above Vine-St., Philadelphia, Pa.,

MANUFACTURERS OF

WET AND DRY PATENT **GAS-METERS,** STATION, SHOW, CUSTOMER, AND EXPERIMENTAL **METERS,**

PHOTOMETERS, PRESSURE-REGISTERS **INDICATORS,** AND GUAGES, GOVERNORS, METER - PROVERS. CENTRE-SEALS, FLUID GUAGES, &c.

The flattering Testimonials we are receiving from Gas Officers, accompanied with expressions of such general satisfaction, and the fact of a tried experience for fourteen years, must present itself as a security to parties desirous of securing the most reliable Instruments. We therefore recommend our Patent Dry Gas-Meter, believing it superior to any Meter manufactured. Messrs. J. Lennig & Co. confine their sole attention to the business of Gas-Meter making.

Our materials are the best in use; the strictest attention is given to workmanship, and we guarantee entire satisfaction to all purchasers.

Purchasers may at any time inspect our Works, and the materials of which our Meters are manufactured. We are fully prepared to execute all orders, upon the shortest notice, and it will be to the interest of parties to call upon us. Each Meter Tested Separately by a Sworn Inspector, and Sealed when desired.

METERS REPAIRED AND FORWARDED WITH DISPATCH.

CLAY RETORTS.

CLAY RETORTS.—J. K. BRICK & Co.—Brooklyn Clay Retort and Fire-Brick Works, Van Dyke, near Van Brunt street, Brooklyn, N. Y.—Manufacturers of Clay Retorts, Fire Brick, Gas and Hot House Tiles, Arch, Furnace and Cupola Brick, Fire Cement, Mortar, &c.

J. K. B. & Co. would invite the attention of Gas Companies to the important fact, that the Clay Retorts manufactured at their Works can be set without Tiles, requiring to be supported only at the front and rear ends, thereby exposing the entire surface of the Retort to the direct action of the flame from the furnace.

The results of this mode of setting, are a Saving of Fuel, Tiles, Transportation of Materials, Labor and Space, thereby enabling Gas Companies to set Retorts of at least 50 per cent. greater capacity than those usually employed in the ordinary arches.

ENGLISH FIRE BRICKS, Ruford's Stourbridge Bricks, Stourbridge and Welsh Clay.

S. THOMPSON'S Neph., IMP'R, 45 Gold-st.

ELLIMAN BROTHERS, 217 Pearl-St., New York, Commission Merchants, Importers of

BELGIAN FIRE-CLAY GAS RETORTS,

Dealers in Tiles, Arch-Bricks, Furnace-Doors, MOUTH-PIECES, COVERS,

and all other Fittings, of the most approved patterns, for setting Clay Retorts.

SABBATON'S PATENT FURNACE-DOORS, & FRAMES,

Floyd's Patent Malleable Iron Retort Covers,

MCKENZIE'S PATENT GAS-EXHAUSTERS,

made by Addison Smith. Compensator-Valves, &c. Gas, Water, and Steam Tubes

GAUTIER'S CLAY RETORTS.—Fire and Arch Bricks, Gas-House Tiles, &c. Black Lead Crucibles for Steel Works and Brass Founders.

MANY, BALDWIN & MANY, 49 John-st., N. Y.

PHILADELPHIA FIRE-BRICK Works, corner of Vine and Twenty-third streets, Philadelphia.

JOHN NEWKUMET,

Manufacturer of all kinds of FIRE-BRICK, GAS-HOUSE TILES, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notice

PATENT PYRO-CLAY GAS REtorts. THOMAS HOADLEY, Patentee, wishes to call the attention of Gas-Engineers to these

RETORTS,

as a very superior article.

REFERENCES:—Gas-Light Works, Buffalo, N. Y.
" " Cleveland, O.
" " Chicago, Ill.

THOS. HOADLEY
Corner of Main and Mulberry Sts., Cleveland, O.

ADDISON POTTER,
WILLINGTON QUAY,
NEAR NEWCASTLE-UPON-TYNE, ENGLAND,
Manufacturer of CLAY RETORTS, FIRE BRICKS, and every description of FIRE CLAY GOODS.

COWEN'S PATENT FIRE-CLAY Retorts.

JOSEPH COWEN & Co., Blaydon Burn, near Newcastle-on-Tyne, England, were the only parties to whom a Prize Medal was awarded at the Great Exhibition in London, of 1851, for "GAS RETORTS AND OTHER OBJECTS IN FIRE CLAY."

J. C. & Co. have been for many years the most extensive manufacturers of Fire Clay Retorts in the United Kingdom; and orders for FIRE CLAY RETORTS of all shapes and dimensions, FIRE BRICKS, and every other article in Fire Clay, are promptly executed at their works as above.

COWEN'S GARESFIELD COAL AND COKE.
Coal and Coke office,
QUAY SIDE, NEWCASTLE ON TYNE.

WILLIAM RYDER, General Mineral and Metal Agent and Merchant, 4 Dean street, NEWCASTLE-ON-TYNE, England, is prepared to supply Gas Companies and others with every variety of appliance for the production and supply of Gas, including GASOMETERS, RETORTS (metal and clay), FIRE BRICKS, COALS, METAL MAINS, TUBES, in wrought iron, copper, brass, lead or composition, METERS, TAPS, FITTINGS, &c., &c.; and from his extensive experience in this class of work, can guarantee every thing of the best description.

JOHN ROGERSON & CO., NEW-CASTLE ON-TYNE, Middlesbro'-on-Tees, London, supply Gas Coal, Clay Retorts, Cast Iron Pipes and Retorts, Gasometers, &c. A partner of the above house being now in this city, will be glad to wait upon any gas company requiring supplies. Agents, MEAD & BELL,
17 William street, New York.

CLIFF'S ENGLISH CLAY RETORTS

Retort-Covers, Gas-Exhausters, Furnace Doors, Castings, Implements, Photometrical and Meter-Proving Apparatus.

T. W. PARMELE, Sole Agent,
No. 4 Irving Place, New-York.

IRON FOUNDRIES.

S. V. MERRICK, J. VAUGHAN MERRICK,
W. H. MERRICK.

SOUTHWARK FOUNDRY, Philadelphia.

MERRICK & SONS, Engineers, manufacturers of every description of Gas Machinery.

Retorts, Bench Castings, Condensers, Washers, Scrubbers, Wet or Dry Lime Purifiers, Coke Wagons, Fire Tools, Wrought Iron Grate Bars, Gasholders, either TELESCOPIC OR SINGLE, WITH SUSPENSION FRAMES COMPLETE; Wrought Iron Roof Frames, for Iron or Slate; Stop Cocks, Exhausters, Steam Pumps, Boilers and Tanks, Steam or Hand Air Pumps for proving Street Mains, Centre Seals, Governors, Wrought or Cast-Iron Lime Sieves for Purifiers, Purifier Hoisting Machines, &c., &c.

Address— MERRICK & SONS,
5th and Washington Streets, Philadelphia.

BERGEN IRON WORKS. Established 1833.

R. A. BRICK, Manufacturer of CAST-IRON WATER and GAS PIPES. RETORTS, PIPES, &c., always on hand, Office 109, Leonard street, New York.

OREGON FOUNDRY, Nos. 740, 742, 744 Greenwich street, New York.

HERRING & FLOYD, proprietors, manufacture Gas Compensators of all sizes, Self-Acting Valves, Exhausters upon an improved plan, costing less than half those of English manufacture, also castings of every description for Gas and Water-Works.

Herring & Floyd offer for sale Sabbaton's Patent Screening Shovels for coke and coals, made of malleable iron, of all sizes; Sabbaton's Patent Improved Cast Iron Furnace Frame and Door, arranged to protect the iron work of the door and frame from direct contact with the fire; also Floyd's Patent Malleable Iron Retort Covers, only quarter of an inch thick, but of convex form, and of great strength, as is attested by certificates from several of the leading Gas-works in America. For engravings of all the above patents see AMERICAN GAS LIGHT JOURNAL for October, 1859, pages 65 and 71.

Samples of the above castings can be seen at the Rooms of the AMERICAN GAS-LIGHT JOURNAL.

COLWELL & CO., Manufacturers of Pig Iron and Cast Iron Gas and Water Pipes, No. 207 North Water street and 206 North Wharves, Philadelphia.

STEPHEN COLWELL, W. DWIGHT BELL,
THEO. TREWENDT, SAMUEL FULTON.

TRANER & MERCER, 117 North Water street, and 124 North wharves, Philadelphia, AGENTS FOR THE MERCER FOUNDRY, AND ELK STREET IRON WORKS

CAST IRON STREET MAINS; *Bends, Branches, Chemical Retorts, and all kinds of Castings for* GAS-WORKS, either COAL or ROSIN WORKS. SHEET IRON FOR GASOMETERS *cut and punched to order.* BOILER IRON *of all descriptions.* RUSSIA SHEET IRON, TIN PLATES, BLOCK TIN, COPPER, PIG LEAD, SPELTER, and Metals generally.

GAS-COAL.

CLEVELAND, O., NOV. 28, 1860.

THE PARTNERSHIP heretofore existing under the name of Butts & Kendall, has expired by its own limitation with the close of the business of the present season.

F. BUTTS & CO.,

will hereafter have the control of the mines of the STERLING COAL AND MINING COMPANY,

and with such increased facilities, both as to improvements perfected at the mines and transportation of coal, as will enable them to continue the business on a more extensive scale than heretofore in *supplying Gas-Light Companies* in the different States, both East and West.

We are now prepared to contract for the delivery of the

CELEBRATED STERLING COAL

for the coming season; also, Pittsburg and other varieties of GAS-COALS.

You will therefore please to address, in relation to such contracts, F. BUTTS & CO.,
Post-Office Drawer, 74, Cleveland, Ohio.

LIVERPOOL AND NEWCASTLE CANNEL & COAL,

FOR

Gas-Manufacturers and House Use.

The careful shipment of the best qualities, of Cannel and Coal, at the lowest rates current at the time of engagement guaranteed.

T. W. PARMELE, Agt.,
No. 4 Irving Place, New-York.

CANNEL AND ORREL GAS-Coal.—The Subscribers are constantly receiving direct, from the celebrated mines of WILLIAM H. BRANKER & CO., NEWCASTLE, ENG., COAL of the very first quality for gas purposes, which they will sell direct from ship or from yard at the lowest market price; and we guarantee the coal to be equal if not superior to any other coal brought to this market.

CORNELIUS BAKER & SON,
61 Leonard st. and 652 Hudson st., New York.

PATENT RIGHTS.

INVENTORS' DEPOT & SALES Room for Patent Rights.—Parties desirous of placing with us valuable Patents, for the sale of Rights, on commission, will here find the Head-Quarters for Inventors and their Patents, as well as for parties seeking investments in articles of undoubted merit. The public are invited to call, or send for Circulars. New articles coming in daily. BUTLER, HOSFORD & CO.,
No. 30 Broadway, N. Y., Proprietors of the Paragon Self-Generating Gas-Light

IRON FOUNDRIES.

MORRIS, TASKER & CO., PASCAL IRON WORKS,
[ESTABLISHED 1821.]

PHILADELPHIA, manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap Welded Boiler Flues,

GALVANIZED WROUGHT IRON TUBES,

ARTESIAN WELL PIPES,

of Wrought or Cast Iron, screwed together, flush inside and out; Gas-works Castings, Retorts and Bench Castings for Coal gas works; Cast Iron Street Mains, Bends, Branches, Drips, &c.

GAS AND STEAM FITTERS' TOOLS, &c.

STEPHEN MORRIS, CHAS. WHEELER,
THOMAS S. TASKER, STEPHEN P. M. TASKER.

CAST IRON WATER, GAS, DRAIN, AND HEATER PIPES, &c.,

COLUMBIAN IRON WORKS,

OFFICE, No. 46 NORTH SEVENTH STREET, Below Arch street, Philadelphia.

THOS. M. ADAMS, Proprietor.

TO GAS AND WATER COMPAnies:

The undersigned, Agent for Messrs. Thomas Edington & Sons, Phenix Foundry, Glasgow, Scotland, Is prepared to contract for all descriptions of Cast-iron Pipes of their manufacture.

About 6000 tons of these Pipes have lately been supplied to the Brooklyn Water-works, N. Y., and the Chief Engineer of the Works, A. P. Kirkwood, Esq., is ready to testify to their excellent quality.

ARCH'LD BAXTER, 28 Beaver st., N. Y.
Sole Agent For the United States and Canada

R. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c.
Office, 400 Chestnut Street,
PHILADELPHIA.

CAST-IRON PIPES.—EARL'S IRON WORKS, NEWARK, N. J., 91, 93, 95, 97 and 99 Chestnut street. Branch Office, 21 Centre street, New York.

The subscriber continues to manufacture Superior Cast-Iron Gas and Water Pipes, Branches, Bends, Angles, Bevel Hubs, Reduces, Sleeves, Drip Syphons, Plugs, Caps, Retorts, Bench Castings, and Castings in general. Particular attention paid to all Castings connected with Gas Works. E. B. EARL.

S. S. ASHCRAFT, Cincinnati, O., Manufacturer of Gas and Water-Pipes, with Branches of every description; Retorts for Gas and Oil Works; Gasholder Stands, Columns, &c.; Gas Purifiers, Condensers, and Gas Apparatus of all kinds; Foundry Work in general.

N. B.—A complete selection of Patterns on hand. Refer to any of the Gas Works in the Western and Southwestern States.

THEODORE SCOWDEN, Engineer, Louisville.
JOHN JEFFREY, Civil Engineer, Cincinnati.
JACOB HOUGHTON, Engineer, Detroit.

ROOFING SLATES of the Eagle Slate Company, are of superior quality, low cost, fire-proof, yield pure and untainted rain water, and last a lifetime. Builders address the agent of the Company,

G. FURMAN,
37 Cortlandt-st., N. Y.

DRAIN-PIPE.

DRAIN PIPES, ENGLISH and AMERICAN.

Garnkirk Chimney Tops,
Plumbers' Materials,
Minton's Encaustic Tiles.

For Sale by

MILLER & COATES,
279 Pearl-st., New York.

ANTI FREEZING APPARATUS

FREEZING OF GAS-PIPES.— Walton's Patent Anti-Freezing Apparatus illustrated by engravings, in the AMERICAN GAS-LIGHT JOURNAL, of Jan. 1, 1861, page 212, is the most simple, durable and efficient of any known process.

See also certificates from Cincinnati, O., and Louisville, Ky. Gas-Works in same number, page 208. Address, JOHN WALTON.
Supt. Gas-Works, Louisville, Ky.

MISCELLANEOUS.

GAS-WORKS AT ASTORIA, N. Y. FOR SALE.—The Astoria Gas Company will sell on Thursday, 28th February, their entire works, situated on the East River with valuable water front. The sale will be positive to the highest bidder, and will include valuable village contracts and privileges for a long term of years, and will afford an unusual opportunity for a profitable investment. For terms and other information apply to

C. R. TRAFFORD, at Astoria, N. Y., or
J. J. HALSEY, 55 Cedar street, New York.
Astoria, N. Y., Feb. 26, 1861.

CARDS.

NATIONAL DIRECTORY OF
Gas & Steam Fitters & Plumbers.

ALBANY, N. Y.	NEW YORK.
WILLIAM MUNSIG, **623 Broadway.**	JAMES HELME **58 East 13th St.**
ALEX. B. SHEPARD, **17 South Pearl St.**	WM. TOWERS, **31 Carmine St.**
BALTIMORE, MD.	GEO. C. ELLISON, **859 Broadway.**
BLAIR & CO., **366 W. Baltm'e St.**	B. M. JOHNSON, **111 East 18th St.**
GRATTAN & EVANS, **8 North St.**	LOCKE & CRAIGIE, **13 East 20th St.**
J. H. McCALL & CO., **15 W. Fayette St.**	McKENZIE & O'HARA, **326 Fourth St.**
JOHN RICHARDS, **274 W. Baltm'e St.**	ANTHONY KENDALL, **258 W. 36th St.**
BOSTON, MASS.	DAVIS B. LANE, **167 William St.**
J. KENNEDY, **45 Maverick Sq.**	F. B. LANGWITH, **63 White St**
W. WILTSHIRE, **46 Devonshire St.**	FRANCIS MATTHEWS, **47 Ann Street.**
N. P. WOODMAN, **13 Haverhill St.**	CHAS. F. MERRITT, **156 Seventh Ave.**
J. B. WRIGHT, **28 Devonshire St.**	WM. PALMER, **408 Eighth Ave.**
CINCINNATI, O.	GEORGE E. PARKER, **156 Seventh Ave.**
BAKER & VON PHIL, **64 Fourth St.**	DAVID REA. **48 Cortlandt St.**

GAS-ENGINEERS.

C. N. TRUMP, Gas-Works Engineer, No. 56, North Seventh-street, Phila. Agent for the Aubin Gas-Works. Gas-Works erected for Towns, Villages, Factories, and Dwellings.

JAMES RENWICK SMEDBERG, Consulting and Constructing GAS-ENGINEER. SAVANNAH, GEO.

REFERENCES:
CHARLES ROOME, Esq., Pres. Man. Gas Co., N. Y.
J. K. BRICK, Esq., Eng'r. Brooklyn Gas Co., "
Messrs. ELLIMAN BROTHERS, New-York.
F. T. WILLIS, ESQ., Pres. Savannah Gas Co.
J. A. SABBATON, Esq., Eng'r. Man. Gas Co., N. Y.
JOHN B. MURRAY, Prop. AM GAS-LIGHT. JOUR.

SCAMMON'S GAS-APPARATUS for private residences, factories, hotels and cities. See engravings of Rosin and Coal Gas-Works in AMERICAN GAS-LIGHT JOURNAL for Dec. 1, 1860, pages 179 and 180.

STEPHEN SCAMMON,
GAS-ENGINEER AND CONTRACTOR,
561 Broadway, New York.

GAS-WORKS ERECTED FOR Cities and Villages. Plans and Specifications furnished for works of any desired capacity, drawings of Retort Settings for Benches of one, two, three, or five Retorts.

GAS APPARATUS

of every description.

F. A. SABBATON,
Gas-Engineer and Contractor, Albany, N. Y.

WATERHOUSE & BOWES, Raleigh, N. C. Builders of Gas-Works in Southern States. The following Gas-works have been built by them, and are their references.

Charlotte, N. C.	Jacksonville, Fla.
Raleigh, N. C.	Fayetteville, N. C.
Salisbury, N. C.	Staunton, Va.
Yorkville, S. C.	Greenville, S. C.
	Waverly, Miss

DIMMOCK, DWIGHT & CO., Engineers and Contractors for the erection of Coal Gas-Works. Offices 135 and 137 William street, New York city; and No. 2 Elm street, Springfield, Mass.

REFERENCES BY PERMISSION:
GEORGE D. MORGAN, Esq., New York.
AARON CLAFLIN, Esq., "
A. B. WOOD, Esq., "
GEORGE BLISS, Esq., N. Y., Pres. M. S. & N. I. R. R. Co
GEO. M. ATWATER, Esq., Springfield, Mass.
JAS. D. BREWER, Esq., Pres. Springfield Gas Co.,
JOHN I. BAKER, Esq., Pres Beverly Gas Co.,
HENRY E. RUSSELL, Esq., Pres. N. Britain Gas Co.
J. DUNHAM, Esq., Pres. Norwich, Ct. Gas Co.,
W. C. STREET, Esq., Sec. Norwalk Ct. Gas Co.

WATER-METERS.

H. R. WORTHINGTON'S Patent Water-Meter.—This Meter combines accuracy, simplicity and remarkable durability, with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

HENRY R. WORTHINGTON,
61 Beekman street, N. Y.

GAS, STEAM, SMOKE,

PURE WATER & SOIL PIPE

FROM

JOSEPH CLIFF,

Wortley Fire-Brick Works, Leeds, Eng.

T. W. PARMELE, Agt.,

No. 4 Irving Place, N, Y.

STOURBRIDGE FIRE-CLAY WORKS.

E. BAKER & CO.,

SUPPLIERS OF

STOURBRIDGE FIRE-CLAY GOODS, &c.,

TO ALL HER BRITANNIC MAJESTY'S DOCKYARDS, &c,

24 Wharf, Harrow Road, Paddington.

Mines and Manufactory—BRIERLEY HILL, STAFFORDSHIRE.

Fire-Clay Retorts, Glass-House Tiles, Cupola Bricks, Lumps, Cement, Crucible and best Pot Clays, &c., &c.

☞ Shippers supplied on liberal terms.

JOHN RUSSELL & CO.,

PATENT TUBE MAKERS,

THE OLD TUBE WORKS, WEDNESBURY, AND THE ALMA WORKS, WALSAL, STAFFORDSHIRE

69 UPPER THAMES-ST., & 5 CHARLES-ST., SOHO, LONDON;

AND 35 GRANBY-ROW, MANCHESTER, ENGLAND.

The original Manufacturers of WROUGHT-IRON GAS TUBES, and the Inventors of the Lapwelded Tubes for Locomotive and Marine Boilers. All kinds of TUBES and FITTINGS, whether for Gas, Steam, or Water. Galvanized and Composition Tubes. Chandeliers, and every kind of Brass-work for Gas and Steam.

STOCKS, DIES, AND TAPS OF ALL SIZES. CAST IRON PIPE AND GAS-METERS.

ALL GOODS WARRANTED.

GENGEMBRE'S PATENT

NON-FREEZING AND NON-EVAPORATING

GAS-METER FLUID.

By the use of this Fluid, the WET GAS-METER of ordinary construction is rendered the most perfect and most reliable Gas-Measuring Instrument ever offered to Gas Companies. In winter the Meter will continue to work equally well, *however exposed it may be*; and in summer, the level of the Fluid remaining constant without refilling, the measurement of the Gas will be both uniform and constant.

The use of this Fluid is both easy and economical, and Gas Companies desirous of using it, will be licensed on liberal terms. For further particulars, and certificates of parties having used the same or over three years, and for city rights, apply to

A. DOISY, Box 1180,

General Agent and Attorney for GENGEMBRE'S PATENT.

N. B.—No Sales of Territorial right, or Licenses for using my Patent will be valid, without being ratified by my Signature, as I have no Agent authorized to execute the same.

H. P. GENGEMBRE, PATENTEE,

Box 48, Alleghany City, Penn.

PLUMBERS & GAS-FITTERS.

JOHN W. FARMER,

PLUMBER AND GAS-FITTER,

No. 248 BROOME STREET,

NEW-YORK.

LOCKE & CRAIGIE, Plumbers and Gas-Fitters, No. 12 East 20th street, New York.

LOCKE, CRAIGIE & CO., Gas-Fittings, Chandeliers, Brackets, Globes, &c., No. 927 Broadway, New York.

☞ Particular attention paid to country work.

JAMES HELME, Chandelier and Gas-Fitting Establishment, No. 58, East Thirteenth street, between Broadway and University Place, New York.

BRADBURY M. JOHNSON, GAS-Fitter and Plumber, No. 111 East Eighteenth street, New York.

A large and elegant assortment of CHANDELIERS, BRACKETS, &c. Gas-Pipe and Posts made for Gas Companies on favorable terms.

M'KENZIE & O'HARA, Plumbers and Gas-Fitters, No. 326 FOURTH STREET, CORNER OF MERCER ST., NEW YORK.

Water Closet Pans, Wine Basins, Wash Basins, Sinks, Fountains, Jets for public and private purposes, Stop-cocks, Filters, and all other Water apparatus.

ALSO, a complete assortment of Gas-fixtures Pendants, Chandeliers, Brackets, &c. &c.

STOP-COCKS, &C.

DANIEL THOMPSON, Machinist and manufacturer of Stop Cocks, Fire Plugs, &c., for Water-Works, STOP COCKS, VALVES, DRIP PUMPS, &c., for Gas-Works, No. 123, Elfreth Alley, Philadelphia.

GAS-METER FLUID.

FLUID for GAS METERS.—The undersigned is prepared to furnish the Glycerine meter fluid in quantities to suit purchasers: *it does not evaporate, can be made to stand any degree of cold liable to occur in this country or in Canada, and does not corrode the metals of the meter. It has been in use successfully for the last three years.*

For particulars, references, &c., address the manufacturer. HENRY BOWER,

Box 363, Philadelphia, Pa.

GENGEMBRE'S PATENT GAS-Meter Fluid. It is non-freezing and non-evaporating. Certificates from several companies that have used it may be found in the AMERICAN GAS-LIGHT JOURNAL for December 1st, 1860, page 163. For Sale only by

A. L. BOGART, 592 Broadway, New York.

TO CONTRACTORS.

TO GAS COMPANIES AND CON-tractors.—For Sale: Two sets Dry Lime Purifiers, 14 feet by 12 feet, 5 tiers of plates' 12 inch connections. A Station Meter, (square case) 8 feet front, 8 feet deep, and 7 feet high; registers 250,000 feet per diem.

Also a quantity of Bench Castings, consisting of Sections of Hydraulic main, (D shaped pattern,) Stand, Bridge and Dip Pipes, together with a number of Composition-faced Slide Valves, various sizes, from 6 inches to16 inches diameter.

Address the ENGINEER OF THE MANHATTAN GAS LIGHT COMPANY, Foot of 18th-st., N. R., New-York.

GAS-HOLDER FOR SALE.—25 feet diameter, 14 feet high, capacity about 6 800 feet. Has been in use but a short time. Good as new. Cast iron guide frame, balance weights and chains complete. Will be sold for $500, (which is less than half its cost) if applied for immediately. Address

M., Box 406 Post Office

Philadelphia, Pa.

DRIP-PUMPS.

THE ILLUSTRATION on page 210 vol. 11, represents our new style of DRIP-PUMP, designed particularly for the use of Gas Companies and Plumbers. The Cylinder, Rod and Plunger, are made of Brass. Without doubt they are the best and cheapest articles in the market. Also, 150 varieties of Iron and Brass Lift and Force Pumps. ALSO, all sizes Fire-Engines, Hose, and Hose-Carriages, Hose-Carts, &c., &c. Address,

COWING & CO., Seneca Falls, N. Y.

IRON RETORTS.

CELLULAR GAS-RETORTS. C. M. CRESSON'S CELLULAR GAS Retorts, Patented October 3d, 1854. Adapted to the manufacture of GAS from Rosin, Coal, Wood, &c., and now in use at the Philadelphia Gas Works. Patent Rights for sale. For information apply to HENRY S. HAGERT, Attorney for Patentee, S. E. cor of Walnut and Sixth streets, Philadelphia, Pa.

FOR SYMMES' PATENT RE-torts, Mouthpieces, &c. address—

ELLIMAN BROTHERS, 217 Pearl-st., New York.

MORRIS, TASKER & CO, Philadelphia.

Or H. K. SYMMES, Newton, Mass.

See Engravings in AMERICAN GAS-LIGHT JOURNAL for July 1, 1860, page 280.

GAS LANTERNS.

A. & G. BRANDON, Manufacturers of Street and Fancy

LAMPS,

of every pattern, for Hotels, Saloons and Public Buildings, on hand and made order.

Cities, Villages, and Gas Companies supplied with Street Lamps, on favorable terms. Office, No. 4 TYRON ROW, City Hall Square, and Manufactory, No. 102 Mulberry street, one door from Canal street, New-York.

Cast Iron Street Lanterns, neat and very durable.

For sale by JOHN JEFFREY, Cincinnati, Ohio

Street Lanterns cast in three pieces, which are fitted together without bolts, rivets, solder or other fastenings; glazed without tins, putty, or catches; the glass slipping into grooves cast in the lantern. These lanterns have been adopted, and are now used, by the City Councils of Cincinnati, O., Covington, Ky., and other cities.

HEATING APPARATUS.

STEAM & HOT WATER Heating.—We are prepared to Heat Public and Private Buildings with Hot Water or Steam, in the most substantial manner, at low prices. Estimates given for work in any part of the country, by RICHARDSON, BOYNTON & CO, No. 260 Canal-st., N. Y.

STEAM DOMESTICATED.—Low Pressure Steam for Domestic Warming, an Apparatus which is simple, durable, economical, and perfectly safe. Estimates given and work done in any part of the country.

Descriptive pamphlets furnished on application to BAKER, SMITH & CO.,

Sole manufacturers, Nos. 180 and 182 Centre street, N. Y.

GEORGE L. CANNON, Successor to the Rippowam Co., 54 East 13th street, between Broadway and University Place manufacturer and dealer in Air, Water, and Steam Warming and Ventilating Apparatus, Cooking Ranges, Range Furniture, Registers, Ventilators, &c.

Particular attention given to Heating Churches, School Houses, Public Buildings &c.

HOT WATER GAS-STOVES, Manufactured by HUNTER, KELLER & Co., 144 Centre-st., New York.

See Engravings on page 163, Vol. II., of this JOURNAL

WATER HOSE.

LEATHER HOSE, for Fire Engines, Steamboats, Factories, Street Washers, &c., manufactured from the best oak-tanned leather, with wrought-copper rivets, always on hand and for sale by

STEPHEN S. VANDERHOFF,

Late John H. Bowle & Co., 25 Ferry-st., N. Y.

CANVAS WATER HOSE—Woven whole and coated on the inner side—a new article, equal to leather even for Fire Engines, where it has been thoroughly tested, costing about one half. For sale in lots to suit purchasers, of all sizes, by

FOX & POLHEMUS, 59 Broad st., cor. Beaver.

STEAM-PUMPS.

WORTHINGTON'S STEAM PUMPS, extensively used by Gas-Light Companies, For Sale at greatly Reduced Prices.

Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.

Patent GATES, for Water and Steam-stops.

HENRY R. WORTHINGTON,

61 Beekman street, N. Y.

BURNELL'S PATENT ROTARY PUMP, adapted to all purposes of Pumping, from the well and cisterns to the steam fire-engine. The most simple, durable and efficient Pump yet made.

Principal sales depot at No. 23 Platt street, New York. SAMUEL B. LEACH.

GAS-BURNERS.

T. G. ARNOLD, Manufacturer of Gas Burners, Mercury Cups, Portable Sockets, Burner Pillars, &c., No. 447 Broome street (second door west of Broadway), New-York. Imported Scotch Tips and Burner Flyers always on hand

FRD. C. KRAUSE, Manufacturer of Patent Porous Gas-Burners for COOKING, IRONING, HEATING, CHEMICAL APPARATUS, &c., No. 772 Eighth Avenue, corner of Fifty-Fourth street, New York.

ORNE'S PATENT FILTER-REG-ULATING GAS BURNER, admitted by all practical and scientific men, who have examined its movements, to be

THE BEST GAS BURNER YET INVENTED.

They are self-regulating, gas-purifying, indestructible, and most economical.

For sale by S. A. STETSON & CO., 350 Washington-st., Boston.

PATENT GAS-BURNERS.—Jas. McGLENSEY, No. 111 South Eighth streeet, PHILADELPHIA, Manufacturer of Gas-Burners, Meters, &c., respectfully calls the attention of Book-Binders, Chemists, Druggists, Copperplate Printers, Brush-Makers, Case and Cabinet-Makers, Hotels and Restaurants, to his Patent Gas-Stove Heating Apparatus, as being particularlarly adapted to their wants—preventing all soiling and injury to the vessels or substances heated, is entirely free from smoke or smell, and highly economical. He refers to the following persons, who have the Apparatus in use.

BULLOCK & CRESHAW, Nos. 103 & 105 N. 6th-st.

T. S. WIEGAND, Chemist, 15th & Race-st.

F. A. GENTHO, Analytical, 33 Walnut-st.

JOS. LIPPINCOTT, Book-Binder, cor. 4th and Commerce-sts.

PERFECTION.—This recent Improvement in Gas-Burners, embraces the great economy of the Hicks Patent Burner, a gain of over 75 per cent. in light. This Burner is now offered to the Trade and all consumers of gas, at the price of the common burner. It is anti-corrosive, gives a uniform and beautifully-shaped blaze, under any pressure, and will not get out of order.

It has been adopted by the Manhattan and Brooklyn, N. Y., Gas Light Cos., for street lamps.

Samples will be sent to each Gas Co., in the United States, if requested.

Address L. E. HICKS,

335 Broadway, New York.

GAS-FIXTURES.

TIFFANY & COMPANY, Jewelers and Importers of elegant artistic PARIS GAS CHANDELIERS, BRACKETS, PENDANTS, &c., in Bronze and Gilt.

No. 550 BROADWAY, NEW YORK.

PHILADELPHIA GAS FIXTURE Works.—Warner, Miskey & Merrill, Manufacturers, Store, No. 718 Chestnut street, Philadelphia. Warner, Peck & Co., No. 376 Broadway, New York, would respectfully inform the public that they continue to Manufacture all kinds of Gas Fixtures, Lamps, Girandoles, Bronzes, &c., and that their large and varied stock comprises the simplest as well as the most elaborate patterns, designed by their French artists. They also continue to keep at their store, 376 Broadway, a large and full assortment of all their manufactured Goods. Dealers and others are invited to call and examine.

GAS FIXTURES TO BE SOLD at Wholesale Prices.—In consequence of alterations in his store, the Subscriber is obliged to dispose of his enire stock of Gas Fixtures. Those wishing to purchase at very low prices will do well to call. Gas Fixtures removed. Gas fitting executed in all its branches.

J. H. VAN REED,

219 Bleecker-st., N. Y.

Gas Fixtures and Fittings. RINGUET-LEPRINCE & L. MARCOTTE, Warehouse, 347 Fourth street.—Manufactory, 55 West Sixteenth street, New York.

RINGUET-LEPRINCE, 3 Rue de la Paix, Paris.

Painting, Paneling, Cabinet Work, Looking-Glass Plates, Mirror Frames, Silk, Worsted and Woolen Materials, Aubusson and Moquette Carpets, Gas Fixtures, Bronzes &c.

GEORGE H. KITCHEN & CO., Manufacturers of Fixtures for Gas Light purposes, Wood's Building, No. 561 Broadway, New York. Office of the Inspector of Gas Meters for the State of New York.

HARPER & O'CONNELL, Manufacturers of Gas Shades and Globes of every description. FRENCH COLORED GAS SHADES AND SMOKE BELLS Nos. 63 and 65 Elizabeth street, corner Hester. New York.

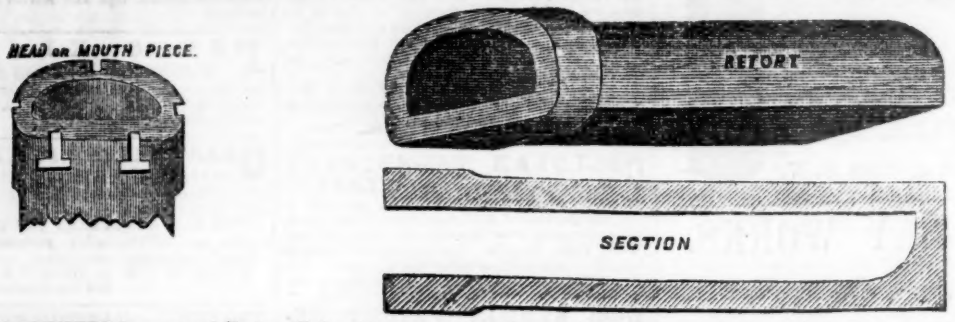
SITUATION WANTED.

The Advertiser wishes a Situation as manager of a Gas-works or Water-works. His practical experience in these departments, as well as in the general field of Civil Engineering, fits him for any position of scientific requirements or practical details. His testimonials from officers of various Gas, Water, and Railway Companies are conclusive as to these points. Address

R. F. P., Post Office, Columbus, O., or Care of AMERICAN GAS-LIGHT JOURNAL, New York.

KING BROTHERS,

STOURBRIDGE, ENGLAND, FIRE-BRICK AND RETORT WORKS.



KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for Burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning thus rendering them

FREE FROM CRACKS AND CORRECT IN FORM.

By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize

RETORT OVENS, FIRE-BRICKS, GUARDS, SADDLES, RABBITTED BURS, FLUES, AND QUARRIES, ARE ALL MANUFACTURED OF THE SAME QUALITY OF CLAY.

EVERY RETORT AND BRICK IS BRANDED "KING BROTHERS, STOURBRIDGE."

HARRIS & PEARSON,

PROPRIETORS OF

BEST GLASS-HOUSE POT, AND CRUCIBLE CLAY.

Manufacturers of Fire-Bricks, Gas-Retorts, and Glass-House Furnace-Bricks of every description.

AMBLECOTE FIRE-CLAY AND BRICK WORKS, STOURBRIDGE, ENGLAND.

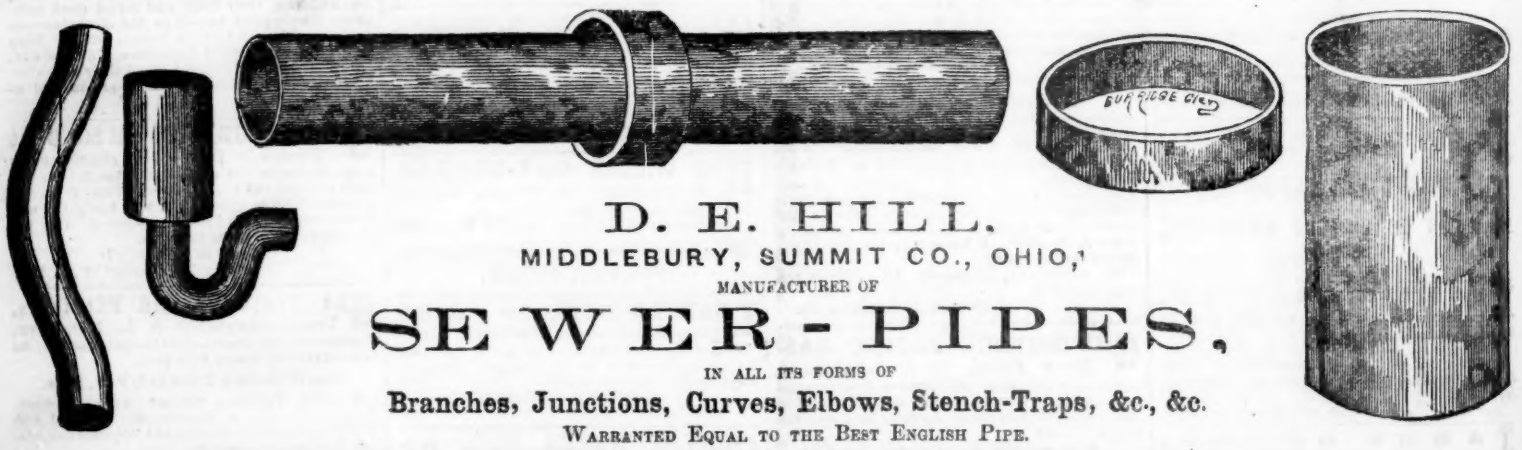
CODE, HOPPER & GRATZ,

1500, 1502 and 1504 FILBERT-St., PHILADELPHIA.

MANUFACTURERS OF

Pressure Registers, Pressure Indicators, Pressure Gauges, Photometers, Governors, Station Meters, Customer Meters, (Wet and Dry,) Experimental Meters, (Wet and Dry,) Show Meters, (Wet and Dry,) Meter Provers, Centre Seals, &c.

The high reputation which we have enjoyed for more than twenty-two years, and the fact that we have manufactured a greater number of Gas-Meters than all other manufacturers in this country combined must present itself as a security to parties desirous of securing the most reliable instruments. Having completed a most extensive addition to our Factory, and added many important improvements to our machinery, we are enabled to fill orders entrusted to us with dispatch, and in all cases *Guarantee Entire satisfaction.* Our Patent Rotary-Valve Dry Gas-Meter is now used by upwards of Two Hundred Gas Companies, giving general satisfaction; we therefore recommend it, believing itsuperior to any other Dry Gas-Meter manufactured. All Meters tested separately by a sworn Meter-Inspector, and sealed when desired.



D. E. HILL.

MIDDLEBURY, SUMMIT CO., OHIO,

MANUFACTURER OF

SEWER-PIPES,

IN ALL ITS FORMS OF

Branches, Junctions, Curves, Elbows, Stench-Traps, &c., &c.

WARRANTED EQUAL TO THE BEST ENGLISH PIPE.

THE

STERLING GAS-REGULATOR

Improves the Light, and Saves a Large per centage of Gas.

MANUFACTURED BY THE

WHEELER & WILSON SEWING-MACHINE COMPANY.

It is well known that Printers require the best and most brilliant light. In proof of the superiority of these Machines over all others, the following New York establishments are using them, and testify to their excellence:—New-York Times, New-York Herald, New-York World, New-York Tribune, New-York Sun, Journal of Commerce, Courier & Enquirer, Evening Post, The Zeitung, Dispatch, Leader, Scientific American, Advertiser and Spectator, Independent, Daily News, Harper's Monthly and Weekly, Transcript, Mercury, Atlas, Life Illustrated, Albion, Spirit of the Times, AMERICAN GAS-LIGHT JOURNAL, Christian Enquirer, Churchman, Church Journal, Christian Advocate, Christian Ambassador, Christian Intelligencer, Observer, Sunday Times, Sunday Courier.

By order of the New York and Brooklyn Common Councils, these Regulators are now used in the City Halls, Police Stations, Markets, and other Public Buildings in both cities.

They are Warranted by the

WHEELER & WILSON SEWING-MACHINE CO.,

505 BROADWAY, NEW-YORK,

to keep in order, and always maintain the pressure of the Gas at the lowest point for a brilliant light, and economical combustion. They are so constructed that *under no circumstances can the Mercury get into the Meters, or in any way injure them.*

MISCELLANEOUS.

PHOTOMETER APPARATUS and Room for Sale.—The Room is about 6 feet wide by 12 feet long, painted black inside and screwed together. It can be taken down and boxed for transportation. All the pipes and fittings are complete for immediate use. Address PHOTOMETER, care of the AMERICAN GAS-LIGHT JOURNAL, 254 Canal Street, New York.

McKINNY & KELLY,

MANUFACTURERS OF

COAL-SCOOPS & COKE-BARROWS.

FURMAN-St., Near Fulton Ferry, Brooklyn, N. Y.

MISCELLANEOUS.

WOODEN TRAYS FOR GAS-PURIFIERS.—JOHN L. CHEESMAN, No. 147 Avenue C, near Tenth street, New-York, manufactures his Patent WOODEN TRAYS for GAS-PURIFIERS, *cut out of the solid wood*, superior to the ordinary iron plates, cheaper and more durable. The attention of Gas Companies and Engineers is called to this improvement, which has been adopted by the following Gas-Works:

Albany, N. Y., Manhattan, N. Y. City,
Chicago, Ill., Philadelphia, Penn.,
Williamsb'gh, N.Y., Worcester, Mass.

See Engravings on page 148, Vol. II.

TO GAS COMPANIES.—We have a few lots of old Meters which have been sent to us for repairs, but as no notice of shipment was sent, are at a loss to know to whom they belong. Will our friends please write us, and give the number sent, the maker's name, &c., so that we can forward each lot to their proper owners.

CODE, HOPPER, & GRATZ,
Philadelphia, Pa.